

SIR GEORGE WILLIAMS UNIVERSITY

ARTS·SCIENCE·COMMERCE·ENGINEERING

1968



69



SIR GEORGE WILLIAMS UNIVERSITY

1435 Drummond Street
Montreal 25, Quebec

ACADEMIC YEAR 1968-69

THE FACULTIES OF
ARTS / SCIENCE / COMMERCE / ENGINEERING

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CALENDAR OF EVENTS

ACADEMIC YEAR 1968-69

1968

TUESDAY, MAY 28	Registration begins - Evening Summer Session
THURSDAY, MAY 30	Registration closes - Evening Summer Session
SUNDAY, JUNE 2	Spring Convocation
MONDAY, JUNE 3	Classes begin - Evening Summer Session
FRIDAY, JUNE 21	Last day for supplemental examination applications
MONDAY, JULY 1	Dominion Day
TUESDAY, JULY 2	Last day for applications - Evening Division
WEDNESDAY, JULY 24	Supplemental examinations begin
THURSDAY, AUGUST 1	Classes end - Evening Summer Session
SATURDAY, AUGUST 3	Supplemental examinations end
MONDAY, AUGUST 5	Examinations begin - Evening Summer Session
THURSDAY, AUGUST 8	Examinations end - Evening Summer Session
TUESDAY, AUGUST 27	Registration begins
MONDAY, SEPTEMBER 2	Labour Day - University closed
WEDNESDAY, SEPTEMBER 11	Registration closes - NO LATE REGISTRATION
MONDAY, SEPTEMBER 16	Classes begin - Day and Evening Divisions
MONDAY, OCTOBER 14	Thanksgiving Day - no DAY classes
SATURDAY, NOVEMBER 9	Last day for applications - supplemental examinations, Summer Sessions
MONDAY, NOVEMBER 11	Remembrance Day
SUNDAY, NOVEMBER 19	Fall Convocation
SATURDAY, DECEMBER 7	Supplemental Examinations - Summer Session
SATURDAY, DECEMBER 14	Last day of classes - first term
MONDAY, DECEMBER 16	Progress examinations (Day and Evening Divisions)
SATURDAY, DECEMBER 21	Last day of progress examinations
THURSDAY, JANUARY 2	First-term final examinations
SATURDAY, JANUARY 4	First-term final examinations end
MONDAY, JANUARY 6	Classes begin, second term - Day and Evening Divisions
MONDAY, MARCH 17	Last day for applications - first-term supplemental examinations - graduating students only

1969

First-term final examinations
First-term final examinations end
Classes begin, second term - Day and Evening
Divisions
Last day for applications - first-term supple-
mental examinations - graduating students
only

SATURDAY, MARCH 29	First-term supplemental examinations – graduating students only
THURSDAY, APRIL 3	Last day of classes – second term
FRIDAY, APRIL 4	Good Friday – University closed
MONDAY, APRIL 7	Easter Monday – University closed
SATURDAY, APRIL 12	Day and Evening Division final examinations begin
SATURDAY, APRIL 26	Last day of examinations
SUNDAY, JUNE 1	Spring Convocation
MONDAY, JUNE 2	Classes begin – Evening Summer Session
THURSDAY, JUNE 19	Last day for supplemental examination applications

1968

1969

JANUARY							FEBRUARY							MARCH							APRIL									
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S			
1	2	3	4				1	2	3	4	5	6	7	8	2	3	4	5	6	7	8	1	2	3	4	5	6	7		
5	6	7	8	9	10	11	2	3	4	5	6	7	8	9	10	11	12	13	14	15	13	14	15	16	17	18	19	20		
12	13	14	15	16	17	18	9	10	11	12	13	14	15	16	9	10	11	12	13	14	15	13	14	15	16	17	18	19	20	
19	20	21	22	23	24	25	16	17	18	19	20	21	22	16	17	18	19	20	21	22	16	17	18	19	20	21	22	23	24	
26	27	28	29	30	31		23	24	25	26	27	28		23	24	25	26	27	28	29	30	31	27	28	29	30				
MAY							JUNE							JULY							AUGUST									
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S			
							1	2	3	4	5	6	7		1	2	3	4	5		1	2	3	4	5	6	7	8	9	
4	5	6	7	8	9	10	8	9	10	11	12	13	14		6	7	8	9	10	11	12	3	4	5	6	7	8	9	10	
11	12	13	14	15	16	17	15	16	17	18	19	20	21		13	14	15	16	17	18	19	10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	22	23	24	25	26	27	28		20	21	22	23	24	25	26	17	18	19	20	21	22	23	24	
25	26	27	28	29	30	31	29	30						27	28	29	30	31			24	25	26	27	28	29	30	31		

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 Blaikie, Peter, B.A. (Bishop's), M.A. (Oxford), B.C.L. (McGill),
Lecturer in Economics
 Booth, James K., B.Sc. (McGill),
Lecturer in Quantitative Methods
 Borenstein, Margalit, B.A. (Hebrew U.),
Lecturer in Hebrew
 Boyle, Katherine M., B.A. (Loyola),
Lecturer in English
 Briggs, Ruth, B.A. (Sask.),
Lecturer in English
 Broad, Margaret I., B.A. (McMaster),
Lecturer in English
 Brocklehurst, Mildred, B.A. (McGill),
Lecturer in English
 Brody, Bernard, B.A. (S.G.W.), M.A., Ph.D. (McGill),
Lecturer in English
 Browne, Marie C., B.A. (Villa Maria), M.A. (Catholic U.),
Lecturer in English
 Byrd, Eric,
Lecturer in Fine Arts
 Caiserman-Roth, Ghitta,
Lecturer in Fine Arts
 Cameron, Peter C., B.Sc. (Glasgow), C.I.A.
Lecturer in Geology
 Candib, Arthur, B.A. (S.G.W.),
Lecturer in English
 Cant, Peter A., M.A. (Edinburgh), Dip. Ed. (Oxford),
Lecturer in English
 Caplan, Sonia, B.A. (S.G.W.),
Conference Leader in English
 Carbotte, R.M., B.Sc. (Manitoba), M.Sc. (McGill),
Lecturer in Mathematics
 Carr, Christopher P., B.A.Sc. (Eng. Physics) (U.N.B.), B.D. (McGill),
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 Cass, Rabbi Samuel, B.A. (C.C.N.Y.), M.H.L., D.H.L. (J.T.S.A.),
Lecturer in Religion
 Chaki, Grace, B.A. (McGill),
Lecturer in English
 Chander, Jagdish, B.A. (Punjab), B.Sc. (Melbourne), M.A.Sc. (Montreal),
Lecturer in Engineering
 Ciale, Justin, B.A. (S.G.W.), M.A. (Montreal),
Lecturer in Psychology
 Clarkson, Leslie G., B.Com. (S.G.W.), C.G.A.,
Lecturer in Accountancy
 Cochrane, E. George, B.A. (S.G.W.), M.Ed. (Toronto),
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Cohen, Phillip S., B.A. (McGill),
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 Cooper, Kathleen, B.A. (Manhattanville), M.S. (Georgetown),
Lecturer in English
 Cordes, William F., B.Com. (S.G.W.), C.A.,
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 Coriat, Annie, L. ès L. (Montreal),
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 Coutu, Robert, B.Sc. (S.G.W.),
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 Cowan, Donald F., B.A. (Ohio), M.A. (Duquesne), Ph.D. (Ottawa),
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 Czapalay, Stephen, B.Sc. (S.G.W.),
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 Danforth, Dorothy E.,
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 Deathe, Ernest W. V., B.A. (Dal.),
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 Douglass, William D., B.A. (Carleton), B.Sc. (S.G.W.),
Lecturer in Mathematics
 Dow, Margaret, B.A. (S.G.W.),
Lecturer in English
 Dudek, Stephanie, B.A. (McGill), M.A. (Columbia), Ph.D. (N.Y.U.),
Lecturer in Psychology
 Edwards, Frank,
Lecturer in English
 Egger, Maria, Ph.D. (London),
Conference Leader in English
 Ehmer, I. Gisela, B.A. (S.G.W.),
Lecturer in German
 Ellemo, James, B.A., B.Sc. (S.G.W.),
Lecturer in Mathematics
 Emond, Lionel J., B.Com., M.B.A. (McGill), C.A.,
Lecturer in Accountancy
 Etheridge, Kenneth C., B.A. (S.G.W.),
Lecturer in Natural Science
 Fallon, Richard H., B.Com. (McGill), C.A.,
Lecturer in Accountancy
 Farrant, Edward, B.A. (S.G.W.),
Lecturer in French
 Feintuch, Alfred, B.Sc. (Brooklyn), Ph.D. (N.Y.U.),
Lecturer in Psychology

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 Feng, Lorenzo, B.Sc. (Santo Tomas), M.Eng. (McGill), Ph.D. (Ottawa),
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 Ferrie, Michael J., B.Com. (Loyola), M.B.A. (Western),
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 Fiorucci, Vittorio,
Lecturer in Fine Arts
 Fjarlie, Earl, M.A.Sc. (U.B.C.), Ph.D. (Sask.),
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 Fletcher, Ann, B.A. (Leeds),
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 Forbes, Vivienne, B.Sc. (Man.),
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 Fox, Marcel R., B.A. (S.G.W.),
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 Franklin, David R., B.A., B.C.L. (McGill),
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 Fuchs, Ivan G., B.Sc. (S.G.W.),
Lecturer in Computer Science
 Gaudry, Elwin A., C.D.P.,
Lecturer in Accountancy
 Gelfand, Leonard, B.A. (Man.), M.A. (Toronto),
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 Gifford, Mary, B.A. (McGill),
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 Gilman, Sylvia, B.A. (S.G.W.),
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 Glazer, Lawrence, B.A. (S.G.W.), L.L.L. (Montreal),
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 Godefroy, Robert K., B.Sc. (S.G.W.),
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 Godel, Morris, B.Sc. (McGill), M.B.A. (Penn.),
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 Goldberg, Barbara, M.A. (McGill),
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Lecturer in Management
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Hassam, Winston C.,
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 Hodge, Norman H., B.Sc. (Western),
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 Lubell, Benjamin, B.C.L. (McGill),
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 Mace, Suzanne,
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Lecturer in French
 Manning, James, C., B.Sc. (Northeastern), C.A.,
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 Martiquet, Helen, B.A. (S.G.W.),
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 Matthews, Michael P., B.A. (U.B.C.),
Lecturer in English
 McCrea, Muriel S., B.A. (Manitoba), M.A., M.S.W. (McGill),
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Lecturer in English
 Michaeli, Moshe, B.A. (Tel Aviv),
Lecturer in Hebrew
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 Migotti, L., Harding, M.A. (Cambridge),
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 Miller, Audrey, M.A. (Toronto),
Lecturer in English
 Miller, Granville E., B.Sc. (S.G.W.), M.A. (McGill),
Lecturer in Mathematics
 Miller, Maurice A., B.Com. (S.G.W.), C.A.,
Lecturer in Accountancy
 Moffat, Albert C.,
Lecturer in Business
 Moore, John M., C.A.A.P.,
Lecturer in Marketing
 Moore, Malcolm K., B.Sc. (S.G.W.),
Lecturer in Quantitative Methods
 Moore, Murray D., B.A. (S.G.W.),
Lecturer in Quantitative Methods
 Morse, Peter W., B.Com. (McGill), M.B.A. (Western),
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 Muir, Anne K., B.A. (Mt. Holyoke), M.A. (McGill),
Lecturer in French
 Munck, Jorgen S., B.Com. (U.B.C.), M.B.A. (Washington),
Lecturer in Marketing
 Nemeth, George, B.A. (S.G.W.), M.Sc.Appl. (McGill),
Lecturer in Psychology

Ogilvie, James D. B., B.Eng., M.Sc., Ph.D. (McGill),
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 Packard, Elizabeth, B.A. (Marianopolis),
Lecturer in English
 Packer, Miriam M., B.A. (S.G.W.),
Lecturer in English
 Paterson, E. Russell, B.A. (McGill),
Assistant Professor of Natural Science
 Peacock, David C.,
Lecturer in Fine Arts
 Peacock, Ethel, B.A. (Mt. Allison),
Lecturer in English
 Pearce, Ruth A., B.A. (McGill),
Lecturer in English
 Pelletier, Jacques,
Lecturer in Fine Arts
 Petrie, B. Mary, B.A. (McGill),
Lecturer in English
 Pilkington, Harry, B.Sc. (S.G.W.),
Lecturer in Mathematics
 Podbrey, Maurice, B.A. (Rand),
Lecturer in Fine Arts
 Posluns, Ronald, B.Com. (S.G.W.), M.B.A. (McGill),
Lecturer in Finance
 Preston, Eileen, B.A. (Manchester),
Lecturer in Classics
 Procter, Dorothy, M.A. (Oxford), P.C.G.E. (London),
Lecturer in English
 Provencher, Andre, B.A. (Montreal), L. ès L. (Lille),
Lecturer in French
 Quinn, Michael J., B.Com. (Ottawa), M.B.A. (Western),
Lecturer in Finance
 Raikes, Richard H., B. Com. (U.B.C.), C.A.,
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 Rainville, Jean-Marie, M.A. (Montreal), Ph.D. (Paris),
Lecturer in Sociology
 de Ravel, Pierre,
Lecturer in Fine Arts
 Reavely, Stanley D., C.A.,
Lecturer in Accountancy
 Richardson, Grace, B.A. (McGill), B.A. (Oxford),
Conference Leader in English
 Ritchie, Elizabeth S., B.A. (McGill), B.A. (Oxford),
Lecturer in French
 Robertson, David N. S., B.A. (Queen's), B.Paed. (Toronto),
Lecturer in Management
 Robertson, Lee A., B.Com. (S.G.W.), R.I.A.,
Lecturer in Accountancy
 Robertson, Leonard A., B.A. (Queen's), M.B.A. (Western),
Lecturer in Management
 Rutledge, Vera L., B.A. (Toronto),
Lecturer in English
 Samson, James B., B.Com. (S.G.W.), M.B.A. (Western),
Lecturer in Management
 Schelling, Robert F., A.B. (Princeton),
Lecturer in Marketing
 Schwartz, David, B.A. (Queen's), B.C.L. (McGill), LL.M. (Harvard),
Lecturer in Political Science

Schwartz, Harry H., B.Eng. (McGill), S.M. (M.I.T.),
Lecturer in Mathematics
 Schwartz, Jacques, B.Sc. (McGill), M.A. (California),
Lecturer in French
 Schwartzman, Goldie, B.A. (S.G.W.),
Lecturer in English
 Schweiger, Ursula, dipl. rer. pol. (Hamburg),
Lecturer in Economics
 Seaman, A. Ross, B.A. (S.G.W.), M.Ed. (Springfield),
Lecturer in Applied Social Science
 Serlin, Cecylia, M.A. (Warsaw),
Lecturer in Geography
 Shugar, Anne, B.A. (McGill),
Lecturer in English
 Shuster, John J., B.Sc. (McGill),
Lecturer in Mathematics
 Silas, Mary, B.A. (McGill),
Lecturer in English
 Silla, Emma, B.A. (McGill),
Lecturer in Business
 Silver, Vivian, B.A. (McGill),
Lecturer in English
 Smith, Larry A., B.Eng., M.B.A. (McGill),
Lecturer in Quantitative Methods
 Smith, Ruth, B.A. (Queen's, N.C.), M.A. (Montreal),
Lecturer in English
 Sparling, Clifford C., B.A. (Queen's),
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 Spier, Judith, M.A. (McGill),
Lecturer in English
 Stonehewer, Lila, B.A., (S.G.W.),
Conference Leader in English
 Strain, William J., B.A. (S.G.W.), C.A.,
Lecturer in Accountancy
 Studham, Richard L., N.D.D. (Sunderland),
Lecturer in Fine Arts
 Surrey, Philip,
Lecturer in Fine Arts
 Szilasi, Doreen, B.A. (S.G.W.),
Lecturer in Fine Arts
 Thomas, David E., B.A. (Wales),
Lecturer in English
 Topham, William T., B.Sc. (S.G.W.),
Lecturer in Natural Science
 Trask, F. Stuart, B.A. (Acadia), B.Com. (S.G.W.), C.G.A.,
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 Turi, J. Giuseppe, D.E.S. (Montreal), LL.D. (Naples),
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 Veinot, Brian J., B.Com. (S.G.W.), C.G.A.,
Lecturer in Accountancy
 Velk, Patricia, B.S. (Wisconsin),
Lecturer in Fine Arts
 Wagner, Cyril J., B.A. (Rutgers),
Lecturer in English
 Wainwright, Barry,
Lecturer in Fine Arts

Walker, Christine, M.A. (Edinburgh),
Lecturer in English
Wallace, Helen, B.A. (U.B.C.),
Lecturer in English
Walters, Brenda, B.A., M.A. (S.G.W.),
Lecturer in English
Weiner, Emanuel, B.B.A. (C.C.N.Y.), M.S.W. (Columbia),
Lecturer in Applied Social Science
Weinstein, Jay Allen, A.B. (Illinois), A.M. (Washington),
Lecturer in Sociology
Weipert, Frank W., B.Com. (S.G.W.), A.C.I.S.,
Lecturer in Business
Weiss, David, B.Sc. (C.C.N.Y.), Dip. S.W. (Columbia),
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Wilcher, Asher, M.A. (Jerusalem),
Lecturer in Modern Languages
Williams, David, B.A. (Bishop's), M.B.A. (McGill),
Lecturer in Finance
Williamson, Diane L., B.A. (Mt. Holyoke),
Lecturer in Spanish
Wolf, Karl, Baccalaureat (Essen), M.A. (Marburg-Lahn),
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Wolkove, Peter, C.A.,
Lecturer in Accountancy
Woolsey, John T., B.A.Sc. (Toronto),
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Worrell, M. Thora, B.A. (S.G.W.),
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Lecturer in English
Wright, V. Jean, B.A. (U.B.C.),
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Lecturer in French
Zemel, Henry, B.Sc. (McGill), M.S. (Berkeley),
Lecturer in Fine Arts
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III

History and Aims of the University

THE HISTORY AND THE AIMS OF THE UNIVERSITY

Sir George Williams University is a Corporation chartered by the Provincial Legislature to conduct a "University within the Province of Quebec," and empowered by that Charter to grant the appropriate degrees, diplomas, and certificates.

It developed from the formal educational work of the Montreal Y.M.C.A. which was inaugurated in 1873, and took the form, at that time, of unit evening courses in vocational and general educational subjects, later co-ordinated into the system known as the Y.M.C.A. schools.

In 1920, the Evening High School was inaugurated to meet the educational needs of young men employed in Montreal, and in 1926, the name Sir George Williams College was adopted, to designate from that time forward, the expanding formal educational programme of the Young Men's Christian Association in Montreal. (Sir George Williams was the founder of the Y.M.C.A. in London, June 6, 1844, seven years before it was established in Canada, when, in 1851, in Montreal, the first Y.M.C.A. in North America was established.) At the same time, the College was made co-educational.

In 1928, the Association held a building campaign for \$1,500,000, part of which sum was to provide enlarged facilities for the work of the College.

In 1929, the College programme was extended to include the first year of studies at the university level in Arts, Science, Commerce, and pre-Engineering, in the evenings, only. From that time onward, the institution, particularly in its university level courses, has grown yearly and rapidly. In 1931, in spite of the depression, the Junior College was organized, offering two full years of University work in Arts, Science, and Commerce, and leading to the Diploma of Associate, and in 1932, day courses were inaugurated for the first time, providing pre-professional and Associate programmes of study in the same three fields. Finally, in 1934, the two-year programmes in Arts, Science, and Commerce were expanded to four-year curricula culminating in the award of the Bachelor's Degree in Arts, Science, and Commerce. The members of the first class graduated in 1936.

During these years the College was conducted under a Charter of the Montreal Young Men's Christian Association (consolidation, June 1888). In March, 1948, however, it was granted a Charter in its own right as a college or university (Quebec, No. 175, 12 George VI, 1948), establishing it a body corporate and politic. By special by-law of agreement, it operated until 1967 as the formal educational arm of the Montreal Young Men's Christian Association. It is still concerned with young men and women who are employed

in the day and in their full development as persons, spiritually, intellectually, and socially, through the medium of its formal educational programmes and related extra-curricular activities. But in spite of this emphasis and concern for its evening classes, a programme of full-time studies for day students is constantly expanding to meet the needs in this area. And, although Sir George Williams is fundamentally a Christian institution, and Christian education therein is of the utmost importance, its doors are open without discrimination to all those of other faiths who wish to come.

In 1952, the Association held a building campaign for \$3,300,000, the major part of which provided the college with a new building especially designed and built to accommodate its activities, hitherto housed, in its rapid expansion, in inadequate and temporary "annexes" throughout the neighbourhood. In 1956, the College occupied a new building constructed especially for its use from funds contributed by the community. These quarters were soon being used beyond their intended capacity. After continuing study, the university decided to expand its facilities and an additional building called the Henry F. Hall Building, was occupied in June, 1966. The University is still studying its future and the ways in which it can make an even better contribution to the community.

A first step in this direction was made in 1957 when a three-year Engineering programme was added to the curriculum. The fourth year was offered for the first time in 1966, and the fifth year, leading to the degree of Bachelor of Engineering (Civil, Electrical, and Mechanical) in 1967. 1966, also saw the introduction of courses leading to the degree of Bachelor of Fine Arts. In 1961 the first Honours programmes were announced and in 1965, graduate courses were approved.

Without a campus, located as it is in the heart of downtown Montreal where it is most readily accessible to its students, Sir George Williams has grown over the years, not only in numbers, but in the acceptance and esteem of its community and among other institutions of higher learning. Its status was clarified on December 18, 1959, when the Provincial Legislature passed an amendment to its act of incorporation changing its name to Sir George Williams University.

The fundamental educational philosophy of Sir George Williams University is that its chief concern shall be the development of persons, through the medium of formal education and its correlated activities. It is recognized that this is not accomplished by mere rote learning. While the subject matter of the curriculum is divided into "courses" for the sake of convenience in administration, the primary aim of the University is that students shall grow in character and personality as well as in those techniques and appreciations which

may be required in full and satisfactory living. The units which go to make up such growth may be conveniently classified as attitudes, abilities, and skills. It is the development of these that the University endeavours to foster in its students.

This principle is not in the least opposed to good scholarship. On the contrary, scholarship can be sound only when it is vital, when it is a living process. For example, attitudes, or ways of feeling toward individuals, institutions, and other elements of one's environment, are as much a part of a person's growth as is the attainment of information, important though this may be.

Because of varying interests, aptitudes, and vocational aims, a modern educational institution must provide a wide range of educational experiences for its students. In the University these experiences, traditionally called the "curriculum", are divided into three broad areas of life, viz.: (a) the nature of the world in which we live (the Natural Sciences), (b) the nature of man and of the society of which he is a part (the Social Sciences), and (c) the cultural heritage of thought, language, and the arts which though it reaches back to the dawn of history, is being continuously remade in our day (the Humanities). Believing that educated people should come into intimate contact with all of these areas of life, it is provided that the academic experience of every student shall include work in each of these major fields. One attempt to accomplish this is the provision of the three exploratory or survey courses in these three fields. The emphasis placed upon the study of contemporary English literature and of modern writings in the fields of science, social science, and the arts is another indication of this point of view.

A fourth division of the University Curriculum (Commerce) is oriented toward education for business careers. Although the programme draws upon a number of disciplines, including the Sciences, the Arts, and the Humanities, it is more than interdisciplinary in the traditional sense of the word. The goal is to demonstrate how information and knowledge from many disciplines are appropriate to problematic situations faced by management.

The members of the staff of Sir George Williams University are interested in the teaching and guidance of students, and contacts between faculty members and students are not confined to the classroom. While students are encouraged to do independent and constructive work, staff members are available for consultation.

Evening Courses of Study

For employed men and women who are unable to attend University during the day, the Evening Division of the University offers the

same programmes and courses of study as are given in the Day Division. The outlines of the various courses of study as listed in this Announcement, therefore, apply to both Day and Evening Divisions. As the standard of achievement demanded by the students of both divisions is identical, equal academic credit is accordingly granted.

In 1963 Sir George Williams University offered in its Evening Division sections of several of its basic introductory degree courses in the French language. This experiment, which has been continued is designed to be helpful to evening students who are able to take university work in the French language. Those courses which will have French sections are listed in the university timetable for the Evening Division.

Degrees, Diplomas and Certificates

DEGREE OF BACHELOR. The University is divided into four faculties : Arts, Science, Commerce, and Engineering. The degrees of Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Science, and Bachelor of Commerce are awarded upon completion of four-year courses of study in the Day Division or the equivalent in the Evening Division. The degree of Bachelor of Engineering is awarded after the completion of a five-year programme of study in the Day Division. Only the first three years of the programme are offered in the Evening Division. The degree of bachelor will be awarded *WITH DISTINCTION* when the candidate has satisfied the requirements for academic excellence. Currently these include a grade point average of 3.2 or higher for all of the courses in the two final years of the programme, with no failing grade of any kind during those two final years.

DIPLOMA IN ASSOCIATION SCIENCE. This diploma is awarded to students training for Y.M.C.A. secretaryship, for professional training taken concurrently with studies for the Bachelor's degree.

CERTIFICATE IN ENGINEERING. Students who successfully complete the three-year programme in Engineering in the Evening Division will be awarded a Certificate in Engineering.

CERTIFICATE OF CREDIT. Students taking partial programmes, i.e., those who are following one or more subjects but are not proceeding to a degree or diploma, are awarded a Certificate of Credit in each subject upon completing the required work and passing the required examination, upon request at the Records Office.

Details concerning programmes of graduate studies are contained in a separate brochure.

Graduation Ceremonies

The Spring Convocation is held each year around the end of May. On this occasion those who have completed their studies during the regular session of the University receive their awards. The Degrees of Bachelor and Master, the Certificates in Engineering, and the Diplomas in Association Science are all presented at the Spring Convocation. Winners of the major prizes of the University are also announced.

The Fall Convocation is held around the end of November for students who have completed degree requirements during the summer session or by means of extra examinations. Any student graduating in the Fall is considered to be a member of the graduating class of the following year, and is eligible for prizes, etc., at that time.

Enrollment

The total enrollment of Sir George Williams University and the Sir George Williams Schools during the regular winter session of 1967-68 was 19,815 individual students. Of these 16,296 were in the University (Faculties of Arts, Science, Commerce, and Engineering), day and evening divisions. During the summer session, 1967, there were 4,620 students enrolled in the University and Schools. Of these 2,978 were in the University.

Men and Women Students

The University is co-educational, women being admitted to all courses on the same basis as are men.

Association of Alumni

Organized by the first graduating class in 1937, the Association of Alumni has become a vital force dedicated to the support of the University, the preservation of an interest in education, and the perpetuation of the fellowship established in the classroom years. Membership is automatically extended to everyone who attends the University and earns the right to be called a Georgian.

The Association, through the generosity of its members, offers a wide range of resources to the undergraduates including legal assistance, financial aid, and counselling in many individual problem areas. The graduate programmes are centred around educational, cultural, and social activities which are structured to continually re-affirm the identification of the individual with his alma mater.

For information contact Donald Hathaway, Executive Director, Association of Alumni.

IV

Undergraduate Studies

Admission and Advanced Standing Regulations

The information contained in this section is applicable to candidates for admission to the University for the 1968-69 academic year only. Imminent revisions in the Quebec educational system may result in major changes in the requirements and procedures for admission to Sir George Williams University for the 1969-70 academic year.

ADMISSION TO UNDERGRADUATE STUDIES

Classification of Students

(1) **Undergraduate Students**: Undergraduate students are those who, at the time of registration meet the full admission requirements of the University and enroll in either the Day or Evening Division with the intention of completing the work required for a degree or a diploma. If the student is proceeding towards a degree, he will be classified as an undergraduate whether he is taking several subjects or only one in any given year.

(2) **Partial Course Students**: Partial course students are those who, at the time of registration do not expect to proceed to a degree or a diploma irrespective of the number of subjects they may be following in any given year. Students who register as partial students are not considered to have matriculated, have no standing towards any degree at the University, and may enroll in the Evening Division only. If a partial student later transfers to undergraduate standing, he may receive credit towards his degree for the courses already taken, provided they apply towards the degree requirements at the time of transfer.

REQUIREMENTS FOR ADMISSION TO UNDERGRADUATE STANDING IN THE UNIVERSITY

The University reserves the right to refuse admission even when the stated requirements for entrance have been satisfied.

(A) APPLICATION FOR ADMISSION

It is recommended that application for admission be made as early as possible on forms provided by the Director of Admissions. Academic certificates and other supporting documents not available at the time of application must be submitted as soon as they become available.

(B) LAST DATE FOR RECEIPT OF APPLICATIONS

DAY DIVISION, Winter Session (September to April):

Applications for admission to undergraduate standing in the Day Division of the University must be submitted before March 1st.

EVENING DIVISION, Winter Session (September to April):

Applications for admission to undergraduate standing for the session commencing in September must be received before July 2nd.

EVENING DIVISION, Summer Session (May to August):

Applications for admission to undergraduate standing in the Evening Division for the session commencing in May must be submitted before April 4th.

(C) APPLICATION FEE

All applications for undergraduate standing must be accompanied by an application fee of \$10 (Canadian), payable by certified cheque or money order. It is not refundable under any circumstances nor will it be applied towards tuition fees.

(D) MEDICAL EXAMINATION REPORT (Day Applicants Only)

Each student who is granted admission to the Day Division of the University must submit a Medical Examination Report on the form provided by the Director of Admissions. The medical report is not required until the student has received formal notification of acceptance.

(E) ADMISSION DEPOSIT (Day Applicants Only)

A deposit of \$250. (Canadian) is required of each successful candidate in order to reserve a place in classes for the student. It is due as soon as an official notice of acceptance has been received by the student. This deposit is intended as confirmation of Sir George Williams as the final choice of a student who has made application to other universities. It will not be refunded under any circumstances, but will be applied towards tuition fees.

CRITERIA FOR ADMISSION

(A) University Admission Tests

Each applicant to the University (freshmen and upperclassmen) is required, as part of the admission process, to complete a psychological test programme designed to collect information relating to the aptitudes, interests, and study habits of the individual student. Such information is subsequently used as a basis for admission and for academic, vocational and personal counselling and guidance. It is not possible to study for these tests as they are not designed to measure achievement in academic subjects. The results of these tests will not be discussed with the applicant until he has become a registered student of the University.

Applicants who do not reside within a reasonable travelling distance of the University are not required to write the Sir George Williams University Admission Tests. Such applicants will be sent information with respect to the procedure for satisfying the Admission Test requirement as soon as their application forms have been submitted.

(B) Secondary School Leaving Certificate (or equivalent)

Each applicant must submit, as soon as it is available, an original High School Leaving Certificate (not a copy) which includes a certified list of final marks in each subject. A student applying for admission on the basis of a Senior Matriculation Certificate must also present his Junior High School Leaving Certificate.

(C) The Principal's Confidential Report

Each candidate for admission to the Day Division on the basis of a Junior or Senior High School Leaving Certificate must have his Principal submit a Confidential Report on the form provided by the Director of Admissions.

A student who is attending High School in the Province of Quebec is not required to submit the Principal's Confidential Report as this document will be obtained directly from the High School by the Director of Admissions.

An applicant to the Evening Division is not required to submit a Principal's Confidential Report unless requested.

(D) The Complete Secondary School Record

Each applicant for admission to the Day Division on the basis of a Junior or Senior High School Leaving Certificate must submit a certified copy of his complete High School Record, including final marks in each subject in each year except the current year, and mid-term marks for the current year.

A student who is attending High School in the Province of Quebec is not required to submit the complete High School Record as this document will be obtained directly from the High School by the Director of Admissions.

A candidate for admission to the Evening Division is not required to have a complete High School Record submitted unless requested.

(E) English Language Requirements

Every non-English-speaking student* will be tested for his competence in English prior to his entry to the University by writing the Sir George Williams University English Language Test. If his performance indicates an insufficient knowledge of the English language, he will be required to take a non-credit course (English 200) designed to bring him up to a satisfactory standard of expression. A student will remain in this course until, in the opinion of the instructor, he is able to express himself competently and coherently.

*"Non-English-speaking student" means any student who has not had all of his high school in English.

If his performance in the test indicates a satisfactory knowledge of the English Language, he will be granted an exemption from English 200.

Once the non-English-speaking student has passed English 200 or has been granted an exemption from it, he will not have to take English 201 or 211 to obtain a degree. However, if he is later discovered to have an inadequate command of English he may be required to return to English 200 for further instruction.

Students who have passed English 200 or have been granted an exemption from it, and who wish to improve their knowledge of English, may enroll in English 201. This is a college-level composition course designed for students for whom English is a secondary language.

Any student whose first language is other than English, and who is applying from outside Canada must demonstrate that he is proficient in English language by writing the Test of English as a Foreign Language administered by the Educational Testing Service.

Information and applications to write the test may be obtained by writing to : Test of English as a Foreign Language, Educational Testing Service, Princeton, New Jersey, U.S.A.

Foreign students who are accepted to the University will be required to write the Sir George Williams English Language Test after their arrival in Montreal.

EARLY FINAL ADMISSION

Superior high school students seeking admission as freshmen to the Day Division may be granted admission on the basis of :

- The Admission Tests
- The Principal's Confidential Report
- The Complete Secondary School Record, including final marks in each subject in each year, except the current year, and mid-term marks for the current year.

Any student who is admitted on the above basis must submit his High School Leaving Certificate as soon as possible (prior to registration) even though it is not used as a criterion for admission.

REQUIREMENTS FOR ADMISSION TO FIRST YEAR**Province of Quebec****DEGREE OF BACHELOR OF ARTS AND BACHELOR OF FINE ARTS**

Students seeking admission to undergraduate standing in Arts must be enrolled in appropriate courses of the final year of high school or must present satisfactory proof of graduation from high school with an average of at least 60% on ten academic papers (at

least 50% in any individual paper) on the Quebec High School Leaving Examinations, or the equivalent, including papers in English Literature and Composition.

DEGREE OF BACHELOR OF SCIENCE AND BACHELOR OF ENGINEERING

Students seeking admission to undergraduate standing in Science or Engineering must be enrolled in appropriate courses of the final year of high school or must present satisfactory proof of graduation from high school with an average of at least 60% on ten academic papers (at least 50% in any individual paper) on the Quebec High School Leaving Examinations, or the equivalent, including papers in English Literature, English Composition, Algebra, Geometry and at least one Science.

DEGREE OF BACHELOR OF COMMERCE

Students seeking admission to undergraduate standing in Commerce must be enrolled in appropriate courses of the final year of high school or must present satisfactory proof of graduation from High School with an average of at least 60% on ten academic papers (at least 50% in any individual paper) on the Quebec High School Leaving Examinations, or the equivalent, including papers in English Literature, English Composition, Algebra and Geometry.

Province of Ontario

A candidate to be considered for admission at Junior Matriculation level must present the Secondary School Graduation Diploma or its equivalent with standing in :

- (1) English, History (pts. 1 and 2).
- (2) Any three of — Mathematics (pts. 1 and 2), Science (Physics and Chemistry), Geography (pts. 1 and 2), French, Latin, Greek, German, Spanish, Italian, Russian.
- (3) One of — an option not chosen from (2); Commercial Subjects Industrial Arts or Technical Subjects, Home Economics, Art, Music.

An overall average of at least 60% is required. Those students applying for admission to the Faculty of Commerce must offer Mathematics (pts. 1 and 2), and those who wish to enter the Faculty of Science or Engineering must include Mathematics (pts. 1 and 2) and Science (Physics and Chemistry).

Other Provinces

The specific papers required for entrance on the basis of other Provincial Certificates may be obtained by writing to the Office of the Director of Admissions.

LIST OF EQUIVALENT CERTIFICATES

The following certificates are accepted as fulfilling the requirements for entrance to the FIRST YEAR of courses in the University provided that a standing equivalent to a 60% average on the Quebec High School Leaving Certificate is indicated.

Province of Quebec

- a) The Quebec Protestant or Catholic High School Leaving Certificate, or the McGill Junior School Certificate.
- b) The Graduation Diploma of Sir George Williams High School.
- c) Certificate d'Études Secondaires, 11e année (option science — mathématiques or science — lettres). Those who completed high school prior to 1964 are required to submit the Grade XII Certificate.
- d) Cours préparatoire aux études supérieures (12e année).
- e) Completion of "Rhétorique" in one of the classical colleges.
- f) The Graduation Diploma of certain secondary schools.

Other Provinces

a) Newfoundland :	Grade XI Matriculation Diploma.
b) Prince Edward Island :	Grade XII Examinations of the Department of Education or Certificate of the Second Year, Prince of Wales College, or the Grade XII Certificate of the High School of St. Dunstan's University.
c) Nova Scotia :	Grade XI Certificate.
d) New Brunswick :	Grade XII Departmental Examinations.
e) Ontario :	Grade XII Secondary School Graduation Diploma.
f) Manitoba :	Grade XI.
g) Saskatchewan :	Grade XI.
h) Alberta :	Grade XI.
i) British Columbia :	Secondary Graduation Diploma Grade XII.

Applicants for admission to the first year of any of the faculties who do not quite meet the requirements may make up deficiencies by taking courses in Sir George Williams Evening High School before entering the University.

Admission to SECOND YEAR on the basis of a Senior High School Leaving Certificate

A student applying on the basis of Senior Matriculation will, in general, be given credit in the first year, course for course, for subjects completed provided that the minimum academic requirements have been satisfied. Certain conditions are attached to the granting of credits for courses completed in a Senior Matriculation programme. Not more than five credits will be allowed in any circumstance. The University may require certain courses not included in these certificates to be made up in the second year. Once a student has registered for courses at Sir George Williams no further credits will be allowed for courses subsequently passed elsewhere, at the Senior High School Leaving Certificate level.

A student transferring from a Senior Matriculation programme after a failed year will not be given credit for any courses successfully completed in the failed year. It is possible, however, to substitute other courses for the passed courses instead of having to repeat them.

Province of Quebec

**DEGREE OF BACHELOR OF ARTS, BACHELOR OF FINE ARTS,
BACHELOR OF SCIENCE AND BACHELOR OF COMMERCE.**

A candidate to be considered for admission from a Senior Matriculation programme is, in general, required to present an overall average of at least 60% in five subjects successfully completed on the Quebec Senior High School Leaving Certificate, or its equivalent. However, a student who has achieved a passing grade in fewer than five subjects may be considered provided that an overall average of 60% has been obtained and satisfactory grades are offered in those subjects which are significantly important as regards the programme of study for which application has been made. It should be noted that certain conditions are attached to the granting of credit for courses completed in a Senior Matriculation programme.

DEGREE OF BACHELOR OF ENGINEERING

A student presenting a Quebec Senior High School Leaving Certificate or its equivalent, including English Literature and English Composition, Physics, Chemistry, and at least Intermediate Algebra, Analytic Geometry and Trigonometry (on either Junior or Senior Matriculation Certificates), will be considered for admission to second year.

Students admitted in this manner will take Engineering 212 in second year, in lieu of English Literature, for which they will already have received credit.

Province of Ontario

The minimum academic requirement for admission from Grade XIII in the Province of Ontario is an overall average of 60% in four (4) subjects comprising seven credits on the Secondary School Honor Graduation Diploma. If at least 5 of the 7 credits have not been obtained in 1967, or 1968, the candidate must present a total of 9 credits.

Subjects may be selected from Art, Biology, Chemistry, English, Geography, History, Languages, Mathematics, Music and Physics. Credits are allotted to the subjects as follows :

THREE CREDITS : Mathematics A & B (one subject)

TWO CREDITS : Mathematics A; English; other Languages

ONE CREDIT : All other subjects.

It should be noted that certain conditions are attached to the granting of credit for courses completed in a Senior Matriculation program.

A student who intends to enter the Faculty of Engineering must include papers in English, Physics, Chemistry, Mathematics A and B, on the Secondary School Honor Graduation Diploma.

Other Provinces

Applicants from other Provinces wishing to apply to second year on the basis of Senior Matriculation, may obtain additional information from the Office of the Director of Admissions.

The following certificates are accepted as fulfilling the requirements for entrance to the SECOND YEAR of the University provided that a standing equivalent to a 60% average on the Quebec Senior High School Leaving Certificate is achieved.

Province of Quebec

- a) The Quebec Senior High School Leaving Certificate — Protestant or Catholic.
- b) McGill Senior School Certificate.

Other Provinces

- a) Prince Edward Island : Certificate of the Third Year, Prince of Wales College.
- b) Nova Scotia : High School Certificate — Grade XII.
- c) New Brunswick : Grade XIII — Certificate of Moncton High School.

- d) Ontario : Secondary School Honour Graduation Diploma — Grade XIII.
- e) Manitoba : Grade XII.
- f) Saskatchewan : Grade XII.
- g) Alberta : Senior High School Diploma — Grade XII.
- h) British Columbia : Grade XIII.

ADMISSION REQUIREMENTS FROM OTHER COUNTRIES

United States : Those applying from high schools in the United States are generally required to present at least sixteen units of secondary school credits, including four credits in English. Those applying to Science or Engineering should present three units in Mathematics and two units in the Sciences. Those applying to Commerce should include two or three units in Mathematics. In certain cases, the Committee on Admissions may approve slight deviations from the above pattern.

Commonwealth Countries : Applicants offering Commonwealth certificates such as the General Certificate of Education, the Cambridge Overseas Certificate, the Scottish Certificate of Education, or the West African Certificate of Education must present five papers at the Ordinary level (excluding Commercial Subjects, Domestic Science, Health Science, and Religious Knowledge). Credit towards the degree may be given for Advanced, Principal, or Higher Level passes.

Hong Kong : The Hong Kong English School Certificate or the Hong Kong Chinese School Certificate — six papers, of which three must be at the credit level. Applicants who have fewer than three credit level passes may meet the minimum entrance requirement by presenting Ordinary Level passes on the General Certificate of Education in lieu of credit passes on the Hong Kong School Certificate.

Other certificates : Certificates other than those mentioned above may be submitted to the Director of Admissions for examination and evaluation.

SPECIAL EXAMINATIONS

Normally, students will not be permitted to write examinations for courses for which they are not registered at the University. Under special circumstances, in order to validate certain courses for

which proper certificates are not available, students may be permitted, by approval of Faculty Council, to obtain credit for such courses upon passing a special examination.

ADMISSION ON MATURE MATRICULATION

Persons 21 years of age or over who have not satisfied the technical requirements for high school graduation but who have the capacity to do University work are admitted as undergraduates. They are required to write a psychological testing programme, the results of which are used as a basis for admission.

ADMISSION AS A PARTIAL COURSE STUDENT

Partial course students are not required to submit an application form; they need only give evidence of their eligibility for admission at the time of registration. An appointment card for registration may be obtained from the Records Office approximately two weeks prior to the commencement of registration.

Partial course students must either satisfy the minimum entrance requirements of the University or be 21 years of age or over and have the essential background for the courses.

EVENING TO DAY TRANSFER

Undergraduates who wish to transfer from the Evening Division of the University to the Day Division are, in general, required to have successfully completed courses equivalent to at least five credits. Application for transfer is made on forms for transfer provided by the Office of the Director of Admissions.

APPLICATION FOR ADVANCED STANDING

Students who wish to apply for advanced standing upon the basis of work already completed in other colleges or universities should understand the following conditions :

- 1) Each application for advanced standing is considered on its own merit. Two official transcripts must be mailed directly from the university formerly attended before the application for advanced standing will be considered.
- 2) A student presenting evidence that he has completed one year of university work elsewhere will normally be admitted to the second year at this University. It is provided, however, that if such a student's first year selection of subjects has not coincided with the major curricular requirements of Sir George Williams, the deficiency must be made up in the second year.

- 3) A student transferring from other universities to the third or fourth year may be given full standing for the first and second years of his work depending upon the programme previously followed. The University will have the right to insist that certain courses not taken in the first or second year be included as part of the third or fourth year's work where this seems advisable.
- 4) The University does not encourage the practice of students qualifying for several degrees at the Bachelor level. In no case will the University grant more than a second Bachelor's degree to one student without special review of the circumstances by University Council.
- 5) A student transferring from another university after a failed year will not be given credit for any of the courses in the failed year. If any of the courses in that year have been passed, he may, however, be allowed to substitute other courses for these instead of having to repeat them. (See Residence Requirements).
- 6) A student will not be given credit for courses taken in another university during the same academic term in which he has been registered for courses at Sir George Williams University, unless special permission has been obtained in advance from the Registrar.
- 7) No student may register for courses at Sir George Williams University if he is enrolled for concurrent university studies elsewhere.
- 8) Any student who has registered at Sir George Williams University and who wishes to take courses at another university for transfer of credit to Sir George Williams must have the courses approved by the Director of Admissions prior to enrolling for these courses. In addition, students enrolled in the Day Division who wish to take summer courses at another institution for credit at Sir George Williams University, must first obtain the written permission of the appropriate Faculty Council.
- 9) A student may not apply transfer credits towards the residence years at the University unless special permission has been obtained from the appropriate Faculty Council. (See Residence Requirements).

CORE REQUIREMENTS

Students who transfer from another University with a minimum of ten pro tanto credits are exempted from specific course requirements of the first and second years with the exception of the "core courses" listed below. However, such students must satisfy all other regulations for the degree.

Bachelor of Arts		
2 full credits in English Literature		
or		
2 full credits in French Literature	2	
Bachelor of Fine Arts		
Art 211, 231; 221 or 281, and all courses		
specifically required for the major selected		
by the student.		
Bachelor of Science		
First-year Mathematics (213 and 223).	2	
2 credits in first-year Science chosen from :		
Physics 211		
Chemistry 211		
Botany 211 and Zoology 222	2	
TOTAL	4	
Bachelor of Commerce		
Accountancy 211	1	
Mathematics 251 or 450 or 451	1	
Economics 211	1	
Economics electives	2	
Accountancy 411 or Finance 416	1	
Quantitative Methods 242 or Mathematics 441	1	
Quantitative Methods 411	1	
Management 211, 421, 430, 453	4	
Finance 413	1	
Marketing 421	1	
Sociology 211	1	
Psychology 211	1	
TOTAL	16	

V

Residence Requirements

RESIDENCE REQUIREMENTS

1. In addition to the specified courses, there is an additional requirement for any degree. A student must spend *at least* one full academic year at Sir George Williams University. This is interpreted as follows :
 - In Arts, the final five credits.
 - In Science, the final five credits.
 - In Commerce, the final six credits.
 - In Engineering, the courses of the final (fifth) year.
2. Any student who already possesses one degree must complete, at Sir George Williams University, a *minimum* of two additional years in order to earn a second degree at the Bachelor's level. This regulation applies whether the first degree was earned at Sir George Williams University or at some other university, and is interpreted to mean :

All of the requirements as set out in the Announcement of the University for the "core" programme and the final two years of the specified degree, including among the courses taken, seven additional credits at the '400' level. (Arts or Science, at least 10 credits, of which 7 are '400' level; Commerce, at least 12 credits, of which 7 are '400' level; Engineering, all courses in 4th and 5th years).
3. Any student seeking to transfer to Sir George Williams University after having failed at another university or after having compiled an unsatisfactory record at another university must fulfill the residence requirements stipulated for him if he is admitted. In general, a *minimum* of two full academic years will be required for any degree.

ACADEMIC YEAR

Winter Session

The day and evening winter session of the University is divided into two terms of three and one-half months each. Dates marking the opening and closing of these terms are found in the Calendar of Events.

Summer Session

A nine-week session is operated during the summer in the Evening Division for the convenience of Evening Division students only. It is recommended that those who take advantage of this session do so

primarily to lighten their winter course load. Students are advised not to carry a programme through both winter and summer sessions, unless at a reduced course load, for two consecutive summers. Students regularly enrolled in the Day Division may not take courses for credit in the evening summer session without permission of Faculty Council.

Undergraduate engineering students must note, however, that only certain Science and elective courses may be taken in this way since undergraduate courses in Engineering *per se* are not offered in this regular Evening Summer Session. However, selected graduate courses may be offered.

Special Day Summer Session

Courses in Applied Social Science, English, French, Geography, History, and Sociology are held during the day throughout the summer and are open to both Day and Evening Division students. For details regarding these courses, see Section XI.

COURSE LOAD

Winter Session

DAY DIVISION. Students in this division will carry five full courses in the first year. The remainder of the courses will be taken over the three following years with no more than six courses in any one year. However, students regularly registered in the Day Division must carry at least a four-credit course load. The course load for Engineering students is outlined in Section IX.

EVENING DIVISION. Students in this division will normally carry a maximum of three courses. The course load for Engineering students is outlined in Section IX.

NOTE : — A student with a deficiency may remove it by passing a supplemental examination. Under exceptional circumstances, a student may be permitted to make up a deficiency by taking an extra course during the regular session on written application to the Faculty Council for permission to do so.

Summer Sessions

Students registered for courses offered in the regular Evening Summer Session may not take more than two credits of work.

As indicated in the Evening Summer Session time-table, some courses are designated as "maximum load" courses. Included in this category are all those listed at the '400' level, courses in English

Literature, and courses which include a laboratory period or practice period. Students registered for one of these may not register for any other course.

An evening student who is accepted for courses in one of the Special Day Summer Sessions for a one-course programme may, if he wishes, register for a maximum of one credit of work in courses offered in the Evening Summer Session.

Day students are reminded again that they may not register for courses offered in the Evening Summer Session unless prior permission of Faculty Council has been granted.

Special Day Summer Session

Students will ordinarily take one or one and one-half courses with two full credits being the maximum allowed in any circumstances. Further details may be found in Section XI.

VI

Faculty of Arts

CURRICULUM FOR THE DEGREE OF BACHELOR OF ARTS

ADMISSION REQUIREMENTS: Requirements for admission to undergraduate standing in the Faculty of Arts are found in Section IV.

Students preparing for the degree of Bachelor of Arts will take 20 course credits as listed below. A full credit represents three hours of class work per week for a full academic year, with the required additional laboratory or studio work. A three-hour course followed for one term only is therefore a half-course and represents a half credit.

First Year Arts (5 credits)

- I. ONE credit selected from :

Natural Science 210
Physics 210, 211
Chemistry 211
Botany 211 and Zoology 222
Mathematics
Geology 211
- II. ONE credit : English 211*
- III. ONE credit selected from :

English 221
French 221, 222, 231
- IV. ONE credit selected from :

Humanities 210
Philosophy 221
Fine Arts
a non-English language
Religion
Mathematics
- V. ONE credit selected from :

Social Science 210
Psychology 211
Economics
Geography
History
Political Science
Sociology

* A student whose native language is not English should consult the statement on English requirements for non-English-speaking students in Section IV.

Second Year Arts (5 credits)

- I. ONE credit selected from :

Natural Science
Biology, Botany, or Zoology
Chemistry
Geology
Mathematics
Physics
Humanities 220
Geography 221, 231
Psychology 211, 241, 271, 273
Sociology 241
Quantitative Methods 242
(or Statistics 242)
- II. ONE credit selected from :

English Literature or French Literature. The language must be the same as that chosen under III in First Year.
--
- III. ONE credit selected from : Humanities
- IV. ONE credit selected from : Social Sciences
- V. ONE credit selected from : any Faculty

Third and Fourth Year Arts (5 and 5 credits)

Students must take ten further credits through the two years, with a maximum of six credits in any one year. At least six of these ten credits must be from the Humanities and/or Social Sciences.

At least seven of the total twenty credits required for the degree must be selected from courses at the '400' level.

To be admitted to the third year, the student must have completed (or if an evening student, be in the process of completing) the requirements as outlined for the first and second years.

CURRICULUM FOR THE DEGREE OF BACHELOR OF FINE ARTS

Students preparing for the degree of Bachelor of Fine Arts will take 21 course credits as listed below. A full credit represents three hours of lecture work in class or six hours of studio work per week for a full academic year. (Students will be expected to complete a minimum of one hour of outside work per class hour.) Students who fulfill the necessary requirements may transfer from the B.A. (Major in Fine Arts) programme to the B.F.A. programme.

The first-year courses, Art 231 and Art 211 are open to all students in any faculty. However, students considering the possibility of majoring in Art (B.A. or B.F.A.) should try to include Art 231 and Art 211 in their first year. Applications to transfer into the B.F.A. programme are considered after students have completed Art 231 and/or Art 211. The number of students accepted into these programmes will depend upon the space available. Applicants will be considered on the basis of a portfolio of work (three-dimensional work should be photographed), recommendations by the instructors and any other relevant information. Art courses available to the general student include Art 251, Art 231 and 211, Art 240, 242, 243, 444, 443, 441, 461, 232 248, 249.

Students who wish to apply for advanced standing upon the basis of work already completed in other art schools, colleges or universities will be granted credit on the basis of the programme at Sir George Williams University. A transcript, portfolio and/or slides of work should be submitted to the Department of Fine Arts (by appointment if possible) at the time of application prior to March 1st. Students seeking a second degree must complete a minimum of the last two academic years at Sir George Williams University, while students transferring credit towards a first degree must complete a minimum of one full academic year.

Students must Major in one of the following : Painting, Sculpture, Graphics, Design or Art Education. The courses listed in the appropriate column of the curriculum that follows constitute a Major. Students must Minor in one of the following : Painting, Sculpture, Graphics, or Design. One of these subject areas continued over a period of the last two academic years constitutes a Minor.

First Year Fine Arts (5 credits)

- I. ONE credit selected from :

Natural Science 210
Physics 210, 211
Chemistry 211
Botany 211 and Zoology 222
Mathematics
Geology 211
- II. ONE credit : English 211 *
- III. ONE credit selected from :

English 221
French 221, 222, 231
- IV. TWO credits : Art 211, 231

Second Year Fine Arts (5 credits)

- I. ONE credit selected from :

Natural Science
Biology, Botany, or Zoology
Chemistry
Geology
Mathematics
Physics
Humanities 220
Geography 221, 231
Psychology 211, 241, 271, 273
Sociology 241
Quantitative Methods 242 (or Statistics 242)
- II. ONE credit selected from :

English Literature or French Literature. The language must be the same as that chosen under III in First Year.
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- III. ONE credit selected from :

Social Science 210
Psychology 211 **
Economics
Geography
History
Political Science
Sociology
- IV. ONE credit selected from : Social Sciences ***

* A student whose native language is not English should consult the statement on English requirements for non-English-speaking students in Section IV.

** Required for Art Education majors.

*** Education 211 required for Art Education majors.

	Painting Major	Sculpture Major	Graphics Major	Design Major	Art Education Major
V.	Art 410	Art 221	Art 281	Art 490	Art 221 or 281 or 410

Third Year Fine Arts (6 credits)

	Painting Major	Sculpture Major	Graphics Major	Design Major	Art Education Major
I.	Art 411	Art 421	Art 481	Art 491 or 494	Art 411 or 421 or 481

II. FIVE credits selected from the required and elective courses.

Fourth Year Fine Arts (5 credits)

	Painting Major	Sculpture Major	Graphics Major	Design Major	Art Education Major
I.	Art 412	Art 422	Art 482	Art 493	Art 412 or 422 or 482
II.	Art 431	Art 431	Art 431	Art 492	Art 451
III.	THREE credits selected from the required and elective courses.				

Required Courses (Third and Fourth Years)

	Painting Major	Sculpture Major	Graphics Major	Design Major	Art Education Major
I.	Art 240	Art 240	Art 240	Art 240	Art 240
II.	Art 243	Art 243	Art 243	Art 243	Art 243
III.	Art 221	Art 281	Art 221	Art 221	Art 221
IV.	Art 281	Art 410	Art 410	Art 281	Art 410
V.	Art 490	Art 490	Art 490	Art 410	Art 490

Elective Courses (Third and Fourth Years)

- I. A selected studio course in Fine Arts at the '400' level.
- II. A selected credit at the '400' level from any faculty (Education 411 required for Art Education majors).
- III. A selected credit from any faculty, to be approved by the Department of Fine Arts.

DEPARTMENT OF FINE ARTS

Evening Non-Credit Programme 1968-69

639 - Art 151 (non-credit). Life Drawing

A course in drawing using various media; quick sketches and long studies. This course stresses the development of personal interpretation.

639 - Art 152 (non-credit). Painting

Painting in various media. The elements of picture making will be considered. Individual and personal development will be stressed.

639 - Art 155 (non-credit). Portrait Sculpture

An introductory course with the emphasis on characterization and materials, and occasional figure studies.

MAJOR PROGRAMMES

A "major" is an approved *sequence* of at least six credits in a specific field, which may include certain approved courses in other closely related fields. The term "major" as used by Sir George Williams University implies that the student has followed, within the requirements for the degree, a planned programme in a specialized field.

Any student wishing to major must consult the chairman of the department concerned before planning a course sequence, and present to the Registrar a statement signed by the appropriate chairman, authorizing him to register for studies in the major field. It is recommended that such consultation take place during a student's second year, or before commencing the third year.

REQUIREMENTS FOR MAJORS

Applied Social Science

The following courses, in an approved sequence, constitute a major in Applied Social Science :

- A. Three credits chosen from Applied Social Science 221*, 231*, 241*, 251*, 411*, 431, 441*, 451*, 452*, 461, 471.
- B. Psychology 211; one credit chosen from Psychology 437, 441, 451.
- C. Sociology 211; one credit chosen from Sociology, 421, 441*, 442, 443*.

* Half-course.

D. One additional credit chosen from Applied Social Science, Psychology, Sociology; Geography 211, 431, 441; Religion 221, 231, 414.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Art History (Bachelor of Arts only)

The following courses, in an approved sequence, constitute a major in Art History :

Art 231, 240, 242, 243, 431, 433; 441 or 443; 444.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Fine Arts.

Canadian Studies

The following courses, in an approved sequence, constitute a major in Canadian Studies :

- A. English 244, French 211, Geography 441, History 221.
- B. At least three credits chosen from English 444*, Art 249*, 444, French 231, 431*, 432*, Religion 261, Economics 423*, 424, Education 231*, History 424, Political Science 251.
- C. Two courses with Canadian content chosen in consultation with the coordinator of the Canadian Studies programme.
- D. Canadian Studies 411 to be taken in the fourth year.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the coordinator of the Canadian Studies programme.

Classics

The following courses, in an approved sequence, constitute a major in Classics :

Greek 211, 212, 421.
 Latin 211, 421; 422 or 423.
 Classics 211, Philosophy 221.

Classics 411 may be substituted for Classics 211 or Philosophy 221 with the approval of the chairman of the department.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

* Half-course.

Design

The following courses, in an approved sequence, constitute a major in Design :

Art 211, 231, 240, 410, 490; two credits chosen from Art 491, 492, 493, 494.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Fine Arts.

Drama

The following courses, in an approved sequence, constitute a major in Drama :

English 221, 253, 265, 437, 462*, 468.

Drama 212, 247, 252, 421, 455, 456.

Art 231.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Fine Arts.

Economics

The following courses, in an approved sequence, constitute a major in Economics :

Economics 211 or 213; 411 or 413; 421; 451 or 452; three and one-half additional credits chosen from among all Economics courses, Mathematics 251, Quantitative Methods 242 (or Statistics 242).

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Economics and History

The following courses, in an approved sequence, constitute a major in Economics and History :

Economics 211 or 213; 221; 411 or 413; 421, 424; 451 or 452.
 History 213, 251, 424; one credit chosen from History 431, 441, 456.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairmen of the Departments of Economics and History.

* Half-course.

Economics and Mathematics

The following courses, in an approved sequence, constitute a major in Economics and Mathematics :

Economics 211 or 213; 411 or 413; 421; 451 or 452; 484*, 485*; one additional credit in Economics.

Mathematics 213 and 223 (or 233 by those qualified), 441, 451.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairmen of the Departments of Economics and Mathematics.

Economics and Political Science

The following courses, in an approved sequence, constitute a major in Economics and Political Science :

Economics 211 or 213; 411 or 413; 421; 451 or 452; one additional credit in Economics.

Political Science 211, 421, 431; two additional credits in Political Science.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairmen of the Departments of Economics and Political Science.

English

The following courses, in an approved sequence, constitute a major in English :

- A. English 211, 221, 253.
- B. At least four credits chosen from English 431, 434, 435, 436, 437, 454, 455.
- C. The remainder of ten credits chosen from English 240, 244, 261*, 266*, 277, 444*, 445, 446, 447*, 453*, 461*, 462*, 463, 464*, 467, 468, 472, 475, 581, 483.

One credit in a related field may be substituted for one of the credits required under C with the approval of the chairman of the department.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

* Half-course.

English and German

The following courses, in an approved sequence, constitute a major in English and German :

English 221, 253; four credits chosen from English 265, 434, 435, 436, 437, 463.

German 211, 212, 421, 422, 451.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of English and by the Coordinator of Modern Languages.

English and Religion

The following courses, in an approved sequence, constitute a major in English and Religion :

- A. English 221, 253.
Religion 251*, 252*; one credit chosen from Religion 213, 221, 231, 261.
- B. English 431 or 468; 455.
Religion 461, 462.
- C. Two credits chosen from English 434, 435, 436, 437, 454, 475.
One credit chosen from Religion 443, 444, 448.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairmen of the Departments of English and Religion.

French

The following courses, in an approved sequence, constitute a major in French :

- A. French 211, 214.
- B. French 221, 231, 422, 425, 428*, 429*.
- C. Two credits chosen from French 411, 412, 413*, 414, 421*, 423, 427*, 431*, 432*, 451, 461, 462.

A student whose first language is French, and who is consequently not entitled to take French 211 or 214, will substitute two other courses in consultation with the chairman of the department.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

* Half-course.

French and English Literature

The following courses, in an approved sequence, constitute a major in French and English Literature :

- A. French 211, 214, 221, 423, 425, 427*, 428*, 429*.
- B. English 221, 253; three credits chosen from English 431, 434, 435, 436, 437, 445, 463.
- C. Two credits chosen from French 231, 421*, 422, 431*, 432*, 462, courses in English Literature other than those taken under B.

A student whose first language is French, and who is consequently not entitled to take French 211, will take either French 411 or another credit in French Literature in consultation with the chairman of the Department of French.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairmen of the Departments of French and English.

French and German

The following courses, in an approved sequence, constitute a major in French and German :

- A. French 211, 214; German 211, 212.
- B. French 221, 423, 428*, 429*; two credits chosen from German 421, 422, 451.
- C. Two '400' level credits chosen from remaining courses in French and German, excluding French 481.

A student whose first language is French or German, and who is consequently not entitled to take elementary language courses, will substitute other courses in consultation with the chairman of the Department of French.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of French.

French and Spanish

The following courses, in an approved sequence, constitute a major in French and Spanish :

- A. French 211, 214; Spanish 211, 212.

* *Half-course.*

- B. French 221, 422, 425; two credits chosen from Spanish 421, 422, 423.

- C. Two credits chosen from French 231, 411, 412, 413*, 414, 421*, 423, 427*, 428*, 429*, 431*, 432*, 461, 462, the Spanish course not taken under B.

A student whose first language is French or Spanish, and who is consequently not entitled to take elementary language courses, will substitute other courses in consultation with the chairman of the Department of French.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of French.

Geography

The following courses, in an approved sequence, constitute a major in Geography :

Geography 211, 231, 251, 261, 441, 461*; two additional credits in Geography.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Graphics

The following courses, in an approved sequence, constitute a major in Graphics :

Art 211, 231, 240, 281, 410, 481, 482.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Fine Arts.

History

The following courses, in an approved sequence, constitute a major in History :

History 213; 251 or 261; one credit in Canadian History; two credits in History; one credit approved by the department chosen from History, Economics, English, Fine Arts, Geography, or Political Science. Three of the six credits must be at the '400' level.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

* *Half-course.*

History and Philosophy of Religion

The following courses, in an approved sequence, constitute a major in the History and Philosophy of Religion :

- A. Three credits chosen from Religion 213, 221, 231, 251*, 252*, 261, 263.
- B. Two credits chosen from Religion 411*, 412*, 413, 414, 461.
- C. Two credits chosen from Religion 443, 444, 448, 449, 462.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

International Affairs

The following courses, in an approved sequence, constitute a major in International Affairs :

- A. Political Science 211; one credit at the introductory level chosen from Economics, Geography, History, Psychology, Sociology.
- B. Political Science 421, 422, 423; three '400' level credits chosen from Economics, Geography, History, Psychology, Sociology, approved by the chairman of the Department of Political Science.
- C. At least one credit chosen from Economics, Geography, History, Political Science, Psychology, Sociology, approved by the chairman of the Department of Political Science.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Political Science.

Mathematics

The following courses, in an approved sequence, constitute a major in Mathematics :

Mathematics 450 or 451, 431, 411, 440 or 441; three and one-half additional '400' level credits in Mathematics, excluding Mathematics 442 and 446.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

* *Half-course.*

Mathematics (Statistics Option)

The following courses, in an approved sequence, constitute a major in Mathematics (Statistics Option) :

- Mathematics 450 or 451, 431, 411, 441, 442, 472*.
- One of Mathematics 452, 457, 459.
- One of Mathematics 444, 446.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Painting

The following courses, in an approved sequence, constitute a major in Painting :

Art 211, 231, 240, 410, 411, 412; one additional credit in Fine Arts.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Fine Arts.

Philosophy

The following courses, in an approved sequence, constitute a major in Philosophy :

Philosophy 221, 241, 251*; four additional '400' level credits in Philosophy.

Religion 444 or Political Science 431 may be substituted for one of the '400' level credits in Philosophy with the approval of the chairman of the department.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Political Science

The following courses, in an approved sequence, constitute a major in Political Science :

Political Science 211, 421, 431; three additional credits in Political Science.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

* *Half-course.*

Psychology

The following courses, in an approved sequence, constitute a major in Psychology :

Psychology 211; 271 or 273; 412; 421 or 432 or 461; two credits chosen from Psychology 413, 421, 422, 427, 432, 434, 438, 442, 452, 453, 461, 462*, 471, 472.

One credit from among the following may be substituted for one credit in Psychology with the approval of the chairman of the department : one credit in Biology, one credit in Education, Art 461, Philosophy 211, 221, one credit in Sociology.

Students planning to do graduate work in Psychology or related fields should take Psychology 241 in their second or third year.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Sculpture

The following courses, in an approved sequence, constitute a major in Sculpture :

Art 211, 221, 231, 240, 410, 421, 422.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Fine Arts.

Social Welfare

The following courses, in an approved sequence, constitute a major in Social Welfare :

- A. At the introductory level : Economics 211, Political Science 211, Psychology 211, Sociology 211.
- B. Two additional credits in Sociology and two additional credits in at least *one* of the other three fields named above.
- C. Applied Social Science 461; Psychology 241 or Sociology 241.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Department of Applied Social Science.

Sociology

The following courses, in an approved sequence, constitute a major in Sociology :

* Half-course.

Sociology 211; two additional credits in Sociology. Anthropology 211, Psychology 211; Sociology 425 or Psychology 441.

One credit chosen from Economics 471, History 213, Political Science 411, Psychology 451, Sociology 241.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

HONOURS PROGRAMME

The University has approved programmes leading to an Honours degree in certain selected fields. An Honours degree indicates specialization within a field, and high academic standing. In order to qualify for an Honours degree, a student must meet all of the academic qualifications and comply with the regulations set forth below.

1. An Honours student must maintain a "B" average with no grade lower than "C" in all courses in the basic Honours programme after the introductory course in the subject(s), and a passing grade in any additional courses that may be specifically required as part of the Honours programme. Such additional courses follow the phrase "in addition" in the descriptions of Honours programmes.
2. An Honours student must obtain at least a "C" average over the total degree programme.
3. A student who fails *any* course shall be suspended from the Honours programme. He may be reinstated by the Honours Committee upon recommendation from the department(s) in which he is honouring.
4. An Honours student must meet the requirements for the general degree as well as the specific Honours requirements.
5. The normal point of entry into the Honours degree programme shall be at the beginning of the second academic year. (In the Evening Division, this shall be interpreted to mean at the beginning of the group of courses containing the seventh credit.) However, a student who has followed the courses prescribed for the second year of the Honours programme may be admitted to the programme at the beginning of the third academic year. (In the Evening Division, this shall be interpreted to mean at the beginning of the group of courses containing the twelfth credit.) Regular consultation and contact with the department(s) in an intrinsic part of an Honours programme. For this reason, no

student may enter an Honours programme after the beginning of the third year, and no retroactive approval of entry may be made.

6. A student must complete two full years (not less than ten credits) at this University to meet the residence requirement for an Honours degree.
7. An evening student must complete the last ten credits of the Honours programme within five calendar years.
8. An Honours student shall consult with his department(s):
 - (a) prior to being accepted into the Honours programme.
 - (b) at the end of each year.
9. A student shall be allowed to qualify for only one Honours degree in one degree programme.
10. A student intending to undertake graduate work is strongly advised to include a second language in his undergraduate programme.

REQUIREMENTS FOR HONOURS

Economics

The following courses constitute an Honours programme in Economics, provided the student maintains the required academic standing :

Pattern A (for students in the Faculty of Arts).

First year : Economics 211 or 213.

Second year : Economics 411 or 413; Mathematics 251 (or 450 or 451).

Third year : Economics 452; Quantitative Methods 242 (or Statistics 242 or Mathematics 441).

Third and Fourth years : Economics 421; four and one-half additional credits chosen from among all Economics courses and Accountancy 211.

Pattern B (for students in the Faculty of Commerce).

First year : Economics 211 or 213; Mathematics 251 (or 450 or 451); Accountancy 211.

Second year : Economics 411 or 413; Quantitative Methods 242 (or Statistics 242 or Mathematics 441).

Third year : Economics 452.

Fourth year : Economics 421.

Third and Fourth years : Three and one-half additional credits in Economics.

English

The following courses constitute an Honours programme in English, provided the student maintains the required academic standing :

- A. English 221, 253, 431, 434, 435, 436, 437, 454.
- B. English 467 or 472; 471*.
- C. Three credits chosen from English 244, 261*, 266*, 277, 444*, 445, 446, 447*, 453*, 455, 461*, 462*, 463, 464*, 468, 475, 481, 483.

In addition, the following courses are required :

D. Candidates for Honours are required to take an approved modern or ancient language beyond the introductory level, or to pass during the second year a test in reading comprehension of a language approved by the English department. One of the following course combinations meets this requirement :

French 211, German 211 and 212, German 215, Greek 211 and 212, Latin 211, Russian 211 and 212, Spanish 211 and 212.

The following sequence of courses is suggested for the Honours programmes :

First year : English 221.

Second year : English 253, one or two of English 244, 261*, 437, 445, 463.

Third and Fourth years : The remaining courses to complete the programme.

Candidates should begin to take the required language courses no later than the second year. Candidates are strongly advised to take History 431 early in the programme.

English and Religion

The following courses constitute an Honours programme in English and Religion, provided the student maintains the required academic standing :

* Half-course.

Pattern A (emphasis on the historical)

A. English 221, 253; 431 or 455.
 Three credits chosen from English 434, 435, 436, 437, 445.
 One credit chosen from English 467, 472, 475.

B. Religion 251*, 252*. One credit chosen from Religion 213, 221, 231, 261. Religion 461, 462. One credit chosen from Religion 443, 444, 448. One credit chosen from Religion 411*, 412*, 413, 414.

Pattern B (emphasis on the contemporary)

A. English 221, 253. Two credits chosen from English 244, 431, 435, 436, 445. English 437 or 446. One credit chosen from English 461*, 462*, 464*. One credit chosen from English 467, 472, 475.

B. Four credits chosen from Religion 213, 251*, 252*, 261, 443, 444. Two credits chosen from Religion 411*, 412*, 413, 414, 448.

It is strongly recommended that an Honours student in English and Religion planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew, or Latin.

French

The following courses constitute an Honours programme in French, provided the student maintains the required academic standing :

First year : French 211.
 Second year : French 214, 221.

Third and

Fourth years : French 411, 412, 422, 425, 428*, 429*, 451. Three credits chosen from French 231, 413*, 414, 421*, 423, 427*, 431*, 432*, 461, 462.

A student whose first language is French, and who is consequently not entitled to take French 211 or 214, will substitute two other courses in consultation with the chairman of the department.

A student preparing for graduate work in French is advised to study Latin during his undergraduate programme.

Geography

The following courses constitute an Honours programme in Geography, provided the student maintains the required academic standing :

* Half-course.

First and

Second years : Geography 211, 231, 251.

Second or

Third years : Geography 261.

Third and

Fourth years : Geography 411, 421, 441, 461*, 491; three additional credits in Geography.

It is strongly recommended that an Honours student in Geography planning to do graduate work acquire a good reading knowledge of a modern language related to his field of interest.

An Honours student will be required to meet with a faculty advisor and to participate in field trips as arranged by the department.

History

The following courses constitute an Honours programme in History, provided the student maintains the required academic standing :

Pattern A (emphasizing History of the Americas).

First year : History 213.
 Second year : History 221, 251.
 Third year : History 472.
 Fourth year : History 474*.
 Third and
 Fourth years : History 261 and 425*. Four credits chosen from History 422, 423, 424, 426, 452, 453, 455, 456, 457*, 458*, 473, History-Sociology 493, of which at least one credit must be in Canadian History.

One credit in a related subject may be substituted for one of the credits specified above, with the approval of the chairman of the department.

It is strongly recommended that an Honours student in History planning to do graduate work acquire a good reading knowledge of a modern language. For History of the Americas, French or Spanish is recommended.

Pattern B (emphasizing European and World History).

First year : History 213.
 Second year : History 261. One credit chosen from History 414, 415, 416.
 Third year : History 472.
 Fourth year : History 474*.

* Half-course.

Third and
Fourth years: History 251 and 433*. Four credits chosen from History 413, 414, 415, 416, 431, 441, 443, 444, 461, 462, 473, 481, History-Sociology 493.

One credit in a related subject may be substituted for one of the credits specified above, with the approval of the chairman of the department.

It is strongly recommended that an Honours student in History planning to do graduate work acquire a good reading knowledge of a modern language. For European and World History, French, German, Russian or Spanish is recommended.

History and Philosophy of Religion

The following courses constitute an Honours programme in the History and Philosophy of Religion, provided the student maintains the required academic standing:

First and
Second years: Religion 251*, 252*. One credit chosen from Religion 213, 221, 231, 261.

Second and
Third years: Religion 461 or 462. One credit chosen from Religion 411*, 412*, 413, 414.

Third and
Fourth years: Religion 443, 444, 448; three additional credits in Religion, at least two of which must be at the '400' level.

One credit in a related subject may be substituted for one of the credits specified above, with the approval of the chairman of the department.

It is strongly recommended that an Honours student in the History and Philosophy of Religion planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew, or Latin.

Mathematical Economics

The following courses constitute an Honours programme in Mathematical Economics, provided the student maintains the required academic standing:

* Half-course.

Pattern A (for students entering without Intermediate Algebra and Trigonometry, or entering second year).

First year: Economics 211 or 213; Mathematics 213, 223.

Second year: Economics 452; Mathematics 431, 451.

Third year: Economics 413, 421; Mathematics 411, 440 or 441, 452.

Fourth year: Economics 462, 482, 484*, 485*; Mathematics 444.

Pattern B (for students entering with Intermediate Algebra and Trigonometry).

First year: Economics 211 or 213; Mathematics 233, 451.

Second year: Economics 452; Mathematics 431, 440 or 441.

Third year: Economics 413, 421; Mathematics 411, 452.

Fourth year: Economics 462, 482, 484*, 485*; Mathematics 444.

Mathematics

The following courses constitute an Honours programme in Mathematics, provided the student maintains the required academic standing:

Pattern A (for students entering without Intermediate Algebra and Trigonometry, or entering second year).

First year: Mathematics 213, 223.

Second year: Mathematics 411, 431, 451. (Properly qualified students entering second year will replace Mathematics 451 by 450).

Third year: Mathematics 441, 452, 458, 459.

Fourth year: Mathematics 461, 462, 463.

Third or
Fourth years: Mathematics 472*, 481*.

Pattern B (for students entering with Intermediate Algebra and Trigonometry).

First year: Mathematics 233, 451.

Second year: Mathematics 411, 431, 452.

Third year: Mathematics 441, 458, 459.

* Half-course.

Fourth year : Mathematics 461, 462, 463.

Third or

Fourth years : Mathematics 472*, 481*.

Mathematics (Statistics Option)

The following courses constitute an Honours programme in Mathematics (Statistics Option), provided the student maintains the required academic standing :

Pattern A (for students entering without Intermediate Algebra and Trigonometry, or entering second year).

First year : Mathematics 213, 223.

Second year : Mathematics 411, 431, 451. (Properly qualified students entering second year will replace Mathematics 451 by 450).

Third year : Mathematics 441, 452, 458, 459, 472*.

Fourth year : Mathematics 442, 448. Two credits chosen from Mathematics 444, 446, 461, 462.

Pattern B (for students entering with Intermediate Algebra and Trigonometry).

First year : Mathematics 233, 451.

Second year : Mathematics 411, 431, 452.

Third year : Mathematics 441, 458, 459, 472*.

Fourth year : Mathematics 442, 448. Two credits chosen from Mathematics 444, 446, 461, 462.

Note : (a) Students intending to go on to graduate work in Statistics should elect Mathematics 461 and 462 in fourth year.
 (b) Students intending to go on to graduate work in Operations Research should elect Mathematics 444 and 462 in fourth year.
 (c) Students desiring a more applied programme should elect Mathematics 444 and 446 in fourth year.

Political Science

The following courses constitute an Honours programme in Political Science, provided the student maintains the required academic standing :

First year : Political Science 211.

Second year : Political Science 251, 421.

Third year : Political Science 431.

* Half-course.

Fourth year : Political Science 432, 491.

Third and

Fourth years : Political Science 441. Three credits chosen from Political Science 411, 413*, 414*, 415, 416*, 417*, 422, 423, 433, 451*.

One credit in Economics, Sociology, Geography, or History may be substituted for one of the credits specified above, with the approval of the chairman of the department.

It is strongly recommended that an Honours student in Political Science planning to do graduate work acquire a good reading knowledge of a modern language, and take Political Science 433.

Psychology

The following courses constitute an Honours programme in Psychology, provided the student maintains the required academic standing :

First and

Second years : Psychology 211, 241, 273, Botany 211*, Zoology 222*, Philosophy 211 or 221.

Psychology 273 and the Philosophy and Biology requirements may be taken in the third year if necessary. Students who have taken Psychology 271 in their second year and who are then accepted into the Honours programme will be exempted from Psychology 273, but may be required to take Psychology 471 in their third year.

Third year : Psychology 412, 461.

Fourth year : Psychology 413, 472. One credit chosen from Psychology 421, 422, 427, 432, 434, 438, 442, 452, 453, 462*.

In addition, Sociology 211, to be taken in any year.

It is strongly recommended that an Honours student in Psychology planning to do graduate work acquire a good reading knowledge of French, German or Russian.

Religion and Sociology

The following courses constitute an Honours programme in Religion and Sociology, provided the student maintains the required academic standing :

First and

Second years : Anthropology 211, Religion 213, Sociology 211. One credit chosen from Religion 221, 231, 251*, 252*, 261.

* Half-course.

Third and Fourth years : Two credits chosen from Religion 411*, 412*, 413, 414, 461. Two credits chosen from Religion 443, 444, 448, 462. Sociology 423 or 424; 491. One credit chosen from Anthropology 432, Sociology 421, 422, 432, 444, 492. One additional credit in Sociology chosen in consultation with the student's Honours advisor.

It is strongly recommended that an Honours student in Religion and Sociology planning to do graduate work acquire a good reading knowledge of French, German, Greek, Hebrew, or Latin.

Sociology

The following courses constitute an Honours programme in Sociology, provided the student maintains the required academic standing :

First and Second years : Sociology 211, Anthropology 211, Psychology 211. In addition, Sociology 241. (One of Anthropology 211, Psychology 211 or Sociology 241 may be taken in third year, if necessary.)

Third and Fourth years : Sociology 411, 422, 423 or 424, 491; Psychology 441 or Sociology 425; one additional credit in Sociology.

In addition, one credit, approved by the department, in a social science other than Sociology, Anthropology, or Psychology, to be taken in any year.

It is strongly recommended that an Honours student in Sociology planning to do graduate work acquire a good reading knowledge of French or German.

FACULTY OF ARTS

John W. O'Brien, *Dean*.
Mervin Butovsky, *Assistant Dean*.
Michel Despland, *Assistant Dean*.

NOTE : — Courses which are no longer offered and those titles and course numbers have been changed are listed in Section XVIII.

* *Half-course*.

HUMANITIES DIVISION

HUMANITIES

Rachel Wasserman, *Professor of Humanities*.
Fred H. Knelman, *Professor of History of Science*

600 - Humanities 210. General Course in the Humanities

It is the purpose of this course to enlarge and enrich the student's comprehension of his cultural heritage by the study of Man as a unique creative being. The sources for this study of man are drawn primarily from the fields of history, philosophy, religion, literature and the arts with a view toward examining those experiences and ideas of enduring power which have shaped the nature of the modern man from the age of Greece to the present century. (Full course.)

600 - Humanities 220. Science and Society

Prerequisite : second-year standing. A course designed to acquaint the student in the Faculty of Arts with the impact of science on society. (Full course.)

600 - Humanities 421. Twentieth Century Humanism

Prerequisite : Philosophy 211 or 221, or other approved courses. Modern authors and philosophers are studied and discussed in an attempt to discover the trend of humanistic thinking in the present century. Particular emphasis is placed on global thinking, the effect of modern conditions on contemporary thought. (Full course.)

CLASSICS, MODERN LANGUAGES AND LINGUISTICS

Paul Widdows, *Associate Professor of Classics*.
Charles R. Barton, *Assistant Professor of Classics and Linguistics*.

ANCIENT HISTORY

614 - Classics 211. History of Greece and Rome

A political, cultural and social history of Greece and Rome from the Mycenaean Age to the Fall of the Roman Empire, with special emphasis on fifth century Athens and Rome of the Republic and Early Empire. (Full course.)

614 - Classics 411. Advanced Study in Classics or Linguistics

Prerequisite : permission of the department. Students who wish to continue their study of Classics or Linguistics beyond the prescribed courses may be admitted to this course. The work of each student will be supervised by an appropriate member of the Classics department. (Full course.)

GREEK

605 - Greek 211. Introductory Course in Greek

The purpose of this course is to enable a student, in one year, to gain an adequate knowledge of Greek grammar and syntax and to read simple passages of Greek quickly and accurately. (Full course.)

605 - Greek 212. Greek Language and Literature

The purpose of this course is to complete the study of Greek grammar and syntax begun in Greek 211, and to enable students to begin reading Greek authors. (Full course.)

605 - Greek 421. Greek Literature

This is essentially a reading course involving the study of certain of the great works of Greek literature. It is assumed that students taking this course have an adequate knowledge of Greek grammar and a fair vocabulary. (Full course.)

605 - Greek 422. Greek Literature

A further study of Greek literature (to follow Greek 421). (Full course.)

LATIN**608 - Latin 201. Beginners' Latin**

This course is designed for students who have had no previous Latin and is particularly recommended for those students who wish to be prepared for Latin 211. The course offers instruction in Latin grammar, translation and prose composition. (Full course.)

NOTE : — Students who have received credit toward their admission for high-school Latin may not take this course for credit.

608 - Latin 211. Latin Composition and Translation

Instruction in Latin prose composition and syntax with practice in sight translation. The course also includes translation and literary interpretation of prescribed selections from the Latin classics in poetry and prose. (Full course.)

608 - Latin 421. Latin Literature

The purpose of this course is to provide students, interested in the subject, with a wider and deeper knowledge of the Roman people, their history, life and literature, by the reading of selected works of the best known Latin writers of the Late Roman Republic and the Early Roman Empire. (Full course.)

608 - Latin 422. Latin Literature (Advanced)

A continuation of Latin 421, concentrating on a particular period or the works of a particular author, e.g. Juvenal and Tacitus, or Lucretius. (Full course.)

608 - Latin 423. Latin Literature

A parallel course to Latin 422, covering different authors, e.g. Latin Comedy, Latin Elegists or Horace. As Latin 422 and Latin 423 will not usually be given in the same year, Latin 423 may be taken before Latin 422. (Full course.)

GERMAN

Annamaria Ketter, *Assistant Professor of German.*

604 - German 211. Introductory Course in German

A beginner's course in the German language which is designed, in one year, to make the student conversant with the grammar, pronunciation and ordinary vocabulary of the language. Emphasis is placed upon learning to speak the

language, as well as to read and write it. Lectures and laboratory. (Full course.)

NOTE : — Students whose first language is German, or whose schooling has been conducted in German, will not be admitted to this course.

Students who have credit for German 215 may not take this course for credit.

604 - German 212. German Language - Intermediate

Prerequisite : German 211 or equivalent. Advanced instruction in the language. Emphasis upon idiom and usage in conversation and composition. Representative readings from the works of German writers. (Full course.)

NOTE : — Students whose first language is German, or whose schooling has been conducted in German, will not be admitted to this course.

604 - German 215. German for Reading Knowledge

This course will give the student sufficient background in the structure of the language to be able to read German with reasonable competence. Practice material will be both technical and non-technical. No previous knowledge of the language is required. (Full course.)

NOTE : — Students whose first language is German, or whose schooling has been conducted in German, will not be admitted to this course.

Students who have credit for German 211 may not take this course for credit. This is a terminal course, and may not be used as a prerequisite for advanced courses in German.

604 - German 421. Advanced German Language and Study of the Deutsche Novelle

Prerequisite : German 212 or equivalent. Advanced composition and oral work. A study of the Deutsche Novelle from Goethe to Kafka. This course is conducted entirely in German. (Full course.)

604 - German 422. Advanced German Language and Study of Literature from 1750 to 1830

Prerequisite : German 212 or equivalent. Advanced composition and oral work. Study of the work of Goethe, Schiller, Schlegel, Brentano and others. This course is conducted entirely in German. (Full course.)

604 - German 451. Reading Course in the Modern German Novel

Prerequisite : German 421 or 422. A study of the German novel since 1900. There will be no class periods, and students will work under the direct supervision of the instructor. Regular assignments will be given, and written and oral examinations will be given at the end of the course. (Full course.)

HEBREW

Joseph A. Macaluso, *Assistant Professor of Spanish and Hebrew.*

The University reserves the right to place any student in the course for which he is best suited.

606 - Hebrew 211. Introductory Course in Hebrew

A beginners' course in Hebrew, spoken and written, with reading of classical and modern texts. Lectures and laboratory. (Full course.)

606 - Hebrew 212. Intermediate Course in Hebrew

Prerequisite : Hebrew 211 or equivalent. Readings in the Bible and an introduction to modern Hebrew literature. This course will also complete the study of Hebrew grammar and syntax begun in Hebrew 211, with special emphasis on modern Hebrew usage. (Full course.)

606 - Hebrew 421. Hebrew Literature

Prerequisite : Hebrew 212 or equivalent. A study of classical and modern works of Hebrew literature, together with advanced work in the language. (Full course.)

606 - Hebrew 423. Modern Hebrew Literature

Prerequisite : Hebrew 212 or equivalent. A study of Hebrew literature since 1900. This course is conducted in Hebrew. (Full course.)

RUSSIAN

Angelika-Tatiana Sidorow, *Assistant Professor of Russian*.

611 - Russian 211. Introductory Course in Russian

A beginner's course in the Russian language which is designed in one year to acquaint the student with pronunciation, the main grammatical aspects and a basic vocabulary. Emphasis is placed on speaking, reading and writing Russian. Lectures and laboratory. (Full course.)

NOTE : — Students whose first language is Russian, or whose schooling has been conducted in Russian, will not be admitted to this course. Students who have credit for Russian 215 may not take this course for credit.

611 - Russian 212. Intermediate Russian

Prerequisite : Russian 211 or equivalent. This course consists of a complete review of Russian grammar, composition, reading and conversation. Through reading of short stories and additional material, the student is given the opportunity of acquainting himself with Russian culture and literature. (Full course.)

NOTE : — Students whose first language is Russian, or whose schooling has been conducted in Russian, will not be admitted to this course.

611 - Russian 215. Reading Course in Russian

This course will give the student sufficient grasp of the structure of the language and sufficient basic vocabulary to be able to read Russian with the aid of a dictionary. Both technical and non-technical material will be used. (Full course.)

NOTE : — Students whose first language is Russian, or whose schooling has been conducted in Russian, will not be admitted to this course.

Students who have credit for Russian 211 may not take this course for credit. This is a terminal course, and may not be used as a prerequisite for advanced courses in Russian.

610 - Russian 421. Introduction to 19th Century Russian Literature Through the Short Story

Prerequisite : Russian 212 or equivalent. The short story will be used both as a subject for literary study and as a reflection of the history and social

preoccupations of the period. Opportunity will be provided for discussion and some attention will be paid to composition. This course is conducted in Russian. (Full course.)

610 - Russian 422. Soviet Literature

Prerequisite : Russian 212 or equivalent. A general survey of Soviet prose, drama, and poetry from 1917 to the present day. The aim of the course is to familiarize the student not only with the literature itself but also with its origins and development. Opportunity will be provided for discussions and some time will be devoted to advanced composition. This course is conducted in Russian. (Full course.)

SPANISH

John D. Grayson, *Assistant Professor of Spanish*.

Joseph A. Macaluso, *Assistant Professor of Spanish and Hebrew*.

612 - Spanish 211. Introductory Course in Spanish

A beginner's course in the Spanish language, which is designed in one year to acquaint the student with the main grammatical principles and basic vocabulary. Practice is given in reading, writing and conversation, particular emphasis being placed on oral work. In the second term, classes are conducted as far as is possible in Spanish. Lectures and laboratory. (Full course.)

NOTE : — Students whose first language is Spanish, or whose schooling has been conducted in Spanish, will not be admitted to this course.

612 - Spanish 212. Intermediate Spanish

Prerequisite : Spanish 211, or two or three years of high-school Spanish, or equivalent. Included in this course are a complete review of Spanish grammar and a study of some of the more advanced aspects of usage. Through the reading of short stories and novels, the student is given the opportunity to acquaint himself with Spanish and Spanish-American letters and civilization. Classes will be conducted in Spanish. (Full course.)

NOTE : — Students whose first language is Spanish, or whose schooling has been conducted in Spanish, will not be admitted to this course.

612 - Spanish 421. Introduction to the Literature of Spanish America

Prerequisite : Spanish 212 or equivalent. The aim of this course is to familiarize the student with the history, political thought and civilization of Spanish America as expressed through her literature. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (Full course.)

612 - Spanish 422. Introduction to the Literature of Spain

Prerequisite : Spanish 212 or equivalent. A survey of Spanish literature from the beginning of the Middle Ages to the end of the nineteenth century. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (Full course.)

612 - Spanish 423. Twentieth Century Spanish Literature

Prerequisite : Spanish 212. A study of the literature of Spain, starting with the Generation of '98 and going up to the present day. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (Full course.)

612 - Spanish 426. Literature of the Golden Age

Prerequisite : Spanish 212 or equivalent. A detailed study of the poetry, prose and drama of the Siglo de Oro. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (Half course.)

612 - Spanish 427. Cervantes

Prerequisite : Spanish 212 or equivalent. A detailed study of the work of Spain's most celebrated writer, with special attention given to the *Quijote*. Ample practice is given in oral expression and advanced composition. Classes will be conducted in Spanish. (Half course.)

LINGUISTICS**615 - Linguistics 211. Introduction to Linguistics**

Prerequisite : one credit in a language other than English. The course is divided into two halves : Descriptive Linguistics and Comparative Indo-European Linguistics. Descriptive Linguistics will enable the student to become familiar with the basic elements which underlie all languages and will acquaint him with a number of varied linguistic patterns, with emphasis on the analysis of languages with structural features which differ widely from those ordinarily encountered. Comparative Indo-European Linguistics will enable the student to understand in depth the meaning of "related" languages, by a study of Sanskrit, Greek, Latin, the Romance languages, Germanic, Slavic and the English language. (Full course.)

ENGLISH

Neil Compton, *Professor of English, and Chairman of the Department.*

Douglass Burns Clarke, *Professor of English and Fine Arts.*

Rachel Wasserman, *Professor of Humanities.*

Wynne Francis, *Professor of English.*

Roslyn Belkin, *Associate Professor of English.*

Audrey Bruné, *Associate Professor of English.*

Sidney S. Lamb, *Associate Professor of English.*

L. Elizabeth MacLean, *Associate Professor of English.*

Richard J. Sommer, *Associate Professor of English.*

Rytsa Tobias, *Associate Professor of English.*

Gerald M. Auchinachie, *Assistant Professor of English.*

Henry E. Beissel, *Assistant Professor of English.*

Clarke L. Blaise, *Assistant Professor of English.*

George Bowering, *Assistant Professor of English.*

Michael Brian, *Assistant Professor of English.*

Mervin Butovsky, *Assistant Professor of English.*

Howard R. Fink, *Assistant Professor of English.*

Malcolm B. Foster, *Assistant Professor of English.*

John B. Friedman, *Assistant Professor of English.*

Michael M. Gnarowski, *Assistant Professor of English.*

Stanton de Voren Hoffman, *Assistant Professor of English.*

David B. McKeen, *Assistant Professor of English.*

Leonard Mendelsohn, *Assistant Professor of English.*

Lewis J. Poteet, *Assistant Professor of English.*

Abraham Ram, *Assistant Professor of English.*

G. David Sheps, *Assistant Professor of English.*

Anne M. Stokes, *Assistant Professor of English.*

Margaret Atwood, *Lecturer in English.*

Roger A. Bird, *Lecturer in English.*

David Ketterer, *Lecturer in English.*

Edward Pechter, *Lecturer in English.*

Margaret I. Broad, *Sessional Lecturer in English.*

Mordecai Richler, *Visiting Writer in Residence.*

601 - English 200. English Language

A non-credit course for students whose first language is other than English, designed to raise the student's level of expression to a standard which will enable him to work efficiently at the University. The student will remain in English 200 until, in the opinion of the instructor, he is able to express himself clearly and coherently. Once the student has passed English 200, he will not have to take English 201 or English 211 although he may later elect to take one of these courses for credit.

601 - English 201. English Language and Composition

Prerequisite : English 200, or exemption from English 200. This course is designed for students who have completed secondary school or the equivalent in a language other than English and for whom, therefore, English is a secondary tongue. (Full course.)

NOTE : — Students who have credit for English 211 may not take this course for credit.

601 - English 211. College Composition

This course encourages the development, through practice in the skills of writing, of an effective prose style, to enable the student to work effectively at the college level and beyond. (Full course.)

601 - English 215. Introduction to Speech

Prerequisite : English 211. An introduction to the theory and practice of public speech. (Full course.)

601 - English 219. Creative Writing (Prose)

Prerequisite : English 211. A study of the creative and technical problems of the short story; analysis and criticism of the student's own work. (Full course.)

601 - English 221. Introduction to English Literature

This first-year course studies the development of English literature from Chaucer to the present. Students are expected to attend regular conferences in addition to the lectures. (Full course.)

601 - English 222. Literature and the Modern World

Intended primarily for students in Science, Commerce or Engineering, this introductory course is devoted mainly, although not exclusively, to a study of the literature of this century. Students are expected to attend regular conferences in addition to the lectures. (Full course.)

NOTE : — This course is not an acceptable prerequisite for most advanced English courses.

601 - English 240. World Literature in Translation

A survey of writers in the western tradition who have written in languages other than English, from Homer to Albert Camus. (Full course.)

NOTE : — Students who have credit for English 241 or 242 or 243 may not take this course for credit.

601 - English 244. Canadian Literature

Prerequisite : English 221 or 222. This course provides for the study of Canadian prose and poetry written in or translated into English. Particular emphasis is placed upon contemporary writers. (For a similar and complementary course in French, see French 231.) (Full course.)

601 - English 253. Shakespeare

Prerequisite : English 211. A study of Shakespeare's achievements as dramatist and poet, and the relationship of his work to the social and literary traditions of his day. Shakespeare's work as a whole will be surveyed in some detail : close attention will be paid to some five or six plays and to the Sonnets. (Full course.)

601 - English 261. Introduction to Poetry

Prerequisite : English 221. A study of poetry and its forms with emphasis upon the art of close reading. (Half course.)

601 - English 265. Introduction to European Drama

Prerequisite : English 221. A study of the European dramatic tradition from the beginning of Greek tragedy to the end of the nineteenth century. (Full course.)

601 - English 266. The Short Story

Prerequisite : English 221. A study of the forms and techniques of short fiction. (Half course.)

601 - English 277. Popular Culture and the Mass Media

Prerequisite : English 221 or 222. A historical, theoretical and critical introduction to such characteristic modern media as newspapers, best-selling fiction, magazines, movies, popular music, radio and television. (Full course.)

601 - English 411. Advanced Composition

Prerequisite : English 211 with grade of C or above. English 411 is offered to those students who wish to continue in a writing course in order to gain greater effectiveness in composition for general purposes. (Full course.)

NOTE : — Students who have credit for English 212 may not take this course for credit.

601 - English 418. Creative Writing (Poetry)

Prerequisites : English 211, 221, 261 or permission of the instructor. This course offers advice and a critical reading of their work to advanced students with a special interest and ability in written expression. (Full course.)

NOTE : — This course is open to undergraduates only.

601 - English 419. Advanced Creative Writing (Prose)

Prerequisites : English 211, 219 or permission of the instructor. This course offers advice and a critical reading of their work to advanced students with a special interest and ability in written expression. (Full course.)

601 - English 431. Literature of the English Renaissance

Prerequisites : English 221, 253. A study of English literature from Wyatt to Marvell. (Full course.)

601 - English 434. English Literature of the Restoration and 18th Century

Prerequisites : English 221, and one additional credit in English Literature. A study of English literature from 1660 to 1780. (Full course.)

601 - English 435. English Literature of the Romantic Period

Prerequisite : English 221. A study of prose and poetry from Blake to Keats. (Full course.)

601 - English 436. Victorian Literature

Prerequisite : English 221. A study of the works of major writers in England from 1830 to 1900. (Full course.)

601 - English 437. Modern British and American Literature

Prerequisite : English 221. A study of literature in English since 1900. (Full course.)

601 - English 444. Canadian Literature (Advanced)

Prerequisites : English 221 or 222, 244. A study at a more advanced level than is possible in English 244 of a limited number of major Canadian writers. (Half course.)

601 - English 445. American Literature

Prerequisite : English 221. A study of American prose and poetry from colonial times to the twentieth century. (Full course.)

601 - English 446. Modern European Literature

Prerequisites : English 221, and one additional credit in English Literature. A study of the work (in translation) of major European writers from 1880 to the present. (Full course.)

601 - English 447. American Literature (Advanced)

Prerequisites : English 221, 445. A limited aspect of American literature will be studied intensively. (Half course.)

601 - English 453. Shakespeare (Advanced)

Prerequisites : English 221, 253. An advanced study of a limited number of plays. (Half course.)

601 - English 454. Chaucer and his Contemporaries

Prerequisites : English 221, and one additional credit in English Literature. A study of the work of Chaucer and a few of his major contemporaries. (Full course.)

601 - English 455. Spenser and Milton

Prerequisites : English 221, 253. A study of the works of Edmund Spenser and John Milton. (Full course.)

601 - English 461. Modern Poetry

Prerequisites : English 221; 437 or 446. A study of the works of major poets in the English language in the twentieth century. (Half course.)

601 - English 462. The Modern Drama

Prerequisites : English 221; 437 or 446. A study of drama since Ibsen in Europe, Britain and America. (Half course.)

NOTE : — Students who have credit for English 262 may not take this course for credit.

601 - English 463. The English Novel

Prerequisite : English 221. A study of the origin and development of the English novel to the end of the nineteenth century with special emphasis on readings from Defoe to Henry James. (Full course.)

601 - English 464. Modern Fiction

Prerequisites : English 221; 437 or 446. A study of a limited aspect of modern prose fiction. (Half course.)

601 - English 467. Literary Criticism

Prerequisites : at least three credits in Literature. This course offers both a history of literary criticism from antiquity to the present and studies in the practice of the best contemporary critics. (Full course.)

601 - English 468. English Renaissance Drama

Prerequisites : English 221, 253. A study of the English drama in the 16th and 17th centuries. (Full course.)

601 - English 471. Honours Essay

Prerequisite : open to fourth-year Honours students or to others by permission of the department. Under the supervision of a faculty member, students will write a scholarly critical essay of some 7,500 to 10,000 words. (Half course.)

601 - English 472. Advanced Seminar in a Special Subject

Prerequisites : English 221 and at least two other courses in English Literature; or permission of the department. This course is designed to provide an opportunity for cooperative study and discussion of literature at a relatively advanced level. It is taught, from year to year, by different members of the English department, and the subject changes to accord with the special interests of each instructor. (Full course.)

NOTE : — With the permission of the department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under English 473.

601 - English 473. Advanced Seminar in a Special Subject

Prerequisite : permission of the department. A student repeating English 472 a second time registers for credit under English 473. (Full course.)

601 - English 475. The Religious and Aesthetic Experience in Literature

Prerequisites : English 221, and one additional credit in English Literature. A seminar course which explores the relationship between literature and religious experience. (Full course.)

601 - English 481. Anglo-Saxon

Prerequisites : at least three credits in English Literature. A study of language and literature in the Anglo-Saxon era. (Full course.)

601 - English 483. Middle English

Prerequisites : English 221, 253. A study of the language and literature of England from the twelfth to the fifteenth century (excluding Chaucer). (Full course.)

Cognate Course**Linguistics 211. Introduction to Linguistics.****FINE ARTS**

Alfred Pinsky, *Associate Professor of Fine Arts, and Chairman of the Department.*

Douglass Burns Clarke, *Professor of English and Fine Arts.*

Edwy F. Cooke, *Associate Professor of Fine Arts.*

J. Russell Harper, *Associate Professor of Fine Arts.*

Leah Sherman, *Associate Professor of Fine Arts, and Director of Graduate Programme.*

Frank Mulvey, *Associate Professor of Fine Arts.*

Yves J. Gaucher, *Assistant Professor of Fine Arts.*

Stanley E. Horner, *Assistant Professor of Fine Arts, and Assistant Chairman of the Department.*

Judith Kelly, *Assistant Professor of Fine Arts.*

Roy K. Kiyooka, *Assistant Professor of Fine Arts.*

Peter London, *Assistant Professor of Fine Arts.*

F. John Miller, *Assistant Professor of Fine Arts.*

H. Leslie Smith, *Assistant Professor of Fine Arts.*

John Ivor Smith, *Assistant Professor of Fine Arts.*

Norma Springfield, *Assistant Professor of Fine Arts.*

Kenneth Adams, *Lecturer in Fine Arts.*

Lucien Côté, *Lecturer in Fine Arts, and Theatre Manager.*

Christopher Gabriel-Lacki, *Lecturer in Fine Arts.*

Jean Goguen, *Lecturer in Fine Arts.*

Ellen James, *Lecturer in Fine Arts.*

Carol M. Zemel, *Lecturer in Fine Arts.*

Orson Wheeler, *Special Lecturer in Fine Arts.*

ART**631 - Art 211. Painting and Drawing I**

Prerequisite : Art 231 previously or concurrently. A basic course in drawing and painting investigating the language of picture making. (Full course.)

631 - Art 221. Sculpture I

Prerequisite : Art 211 previously or concurrently. An introductory course to sculpture exploring a variety of media, techniques and approaches. (Full course.)

631 - Art 231. Basic Principles of Art

An introductory course in art, combining lectures and discussion with studio work. The course is concerned with principles basic to the visual arts. Studio work leads towards an understanding and use of art as a visual language. No training or background in art is required. The course is planned to provide an opportunity for the general student as well as art majors to engage in creative activity and expression. (Full course.)

631 - Art 232. Introduction to Architecture and Sculpture

To enable the student to understand and appreciate great works in architecture and sculpture, and to develop a discriminative understanding of three-dimensional form in design and in his architectural environment, the main types, styles, and techniques of these arts are explained and illustrated. To understand their significance, the student is encouraged to become familiar with great examples of these arts through pictorial reproductions, slides, models, museum visits, and field trips. (Full course.)

631 - Art 233. Colour

Prerequisite : Art 231. A course in fundamental theory and research in colour, as applied to the visual arts. A specialized study of recent attitudes and knowledge of colour factors. Lectures and studio periods. (Full course.)

631 - Art 240. Key Monuments in Art History

A study of selected works which represent outstanding and significant achievements in the visual arts. This course will provide an introduction to the history of art, and a desirable foundation for students wishing to pursue more specialized studies in this field. (Full course.)

631 - Art 242. The History of Renaissance Art

A survey of painting, sculpture and architecture in Italy and Northern Europe during the fifteenth and sixteenth centuries. (Full course.)

631 - Art 243. History of Modern Art

Beginning with the rise of Impressionism, this course will examine the main movements and developments in western art during the late nineteenth and twentieth centuries. (Full course.)

631 - Art 248. The History of Interior Design

A survey of the history of interior design in western civilization, outlining briefly how particular styles developed out of the social customs, mores, and general spirit of the times. Special emphasis will be laid on the Renaissance, XVIIIth century, and contemporary styles. (Half course.)

631 - Art 249. Canadian Sculpture and Architecture

A study of the more important developments of Canadian architecture and sculpture from indigenous forms to contemporary work. (Half course.)

631 - Art 251. Art For Classroom Use

A practical and theoretical course of particular interest to teachers. The philosophy of art education, the potentialities of materials and techniques are considered in relation to actual classroom situations. Students are introduced to various creative art media, including painting, collage, construction, printing, and modelling, and are encouraged to see their possibilities for children of different ages. The importance and nature of art in child development is stressed with the aid of films, slides, and selected readings. (Full course.)

631 - Art 281. Graphics I

Prerequisite : Art 211 previously or concurrently. An introduction to the graphic media; etching, lithography, woodcut, etc. Elements of the print-making process in theory and practice. The history of the graphic arts and their relationships with other art forms. (Full course.)

631 - Art 410. Drawing II

Prerequisite : Art 211 previously or concurrently. A drawing course in which various media, and forms of expression will be explored at the more advanced level. Lectures and studio periods. (Full course.)

631 - Art 411. Painting II

Prerequisite : Art 211. The study and interpretation of various approaches to art, both figurative and non-figurative, helps the student through exploration to discover a personal means of expression. (Full course.)

631 - Art 412. Painting and Drawing III

Prerequisite : Art 411. A course in which the student chooses and develops his own projects. (Full course.)

631 - Art 414. Painting IV (Special Study)

Prerequisite : Art 412. An advanced painting course in which students investigate problems of their choice. (Full course.)

631 - Art 421. Sculpture II

Prerequisite : Art 221. A course in sculpture with the emphasis placed on personal exploration of media and sculpture problems. (Full course.)

631 - Art 422. Sculpture III (Special Study)

Prerequisite : Art 421 previously or concurrently. A course in which the student chooses and develops his own projects. Exhibition is required at the end of the course. (Full course.)

631 - Art 431. Analysis of Great Works of Art

Prerequisite : Art 231. An advanced course in art principles. Through the formal analysis of selected masterpieces of painting and sculpture the student is led to a fuller comprehension of the nature of formal order in the arts. (Full course.)

631 - Art 433. Materials and Methods of the Artist

Prerequisite : Art 231. Through a series of special projects this course will familiarize the student with some of the various materials, techniques and other aspects of the artist's craft. Since special emphasis will be given to historical techniques, this course is particularly recommended for all students in art history. Lectures and studio periods. (Full course.)

631 - Art 441. The History of Medieval Art

Prerequisite : Art 240. This course will survey the growth of European art from early Christian times through the fourteenth century. (Full course.)

631 - Art 443. History of Baroque and Rococo Art

Prerequisite : Art 240. Commencing with Mannerism, this course will continue on to investigate the major personalities and achievements in Dutch, Flemish, English, French, Italian and Spanish art in the seventeenth and eighteenth centuries. (Full course.)

631 - Art 444. History of Canadian and American Art

Prerequisite : Art 240. This course will consider the growth and compare developments in American and Canadian art from earliest colonial times to the present day. (Full course.)

NOTE : — Students who have credit for Fine Arts 244 may not take this course for credit.

631 - Art 450. Art in Education

Prerequisites : Art 211, 231. A course for art majors interested in the teaching of art. The student's studio experience is used as a basis for developing a personal philosophy of art education. Studio experiences are combined with readings in the history, philosophy and psychology of art education. Discussions and lectures are included and students are required to observe actual teaching situations. (Full course.)

631 - Art 451. Seminar in Art Education

Prerequisite : Art 450. Problems in art, art education, and the creative processes are dealt with on the basis of the individual experience in art and teaching. Supervised practice teaching is required. (Full course.)

631 - Art 461. Introduction to Aesthetics

This course provides an introduction to the philosophy and psychology of aesthetics. Topics will include the nature of beauty and art, aesthetic experience, symbolic thinking and expression, art as symbolic activity, art as communication, and the principles of formal organization underlying all the arts : music, poetry, drama, sculpture, and painting. (Full course.)

631 - Art 481. Graphics II

Prerequisite : Art 281. An advanced study of various graphic media. The student will investigate and experiment with various approaches, both traditional and contemporary in order to discover a personal means of expression. Lectures and studio periods. (Full course.)

631 - Art 482. Graphics III (Special Study)

Prerequisites : Art 410; 481 previously or concurrently. A course in which the student will choose and develop his own project. Stress will be placed on creative imagination and experimental work. Lectures and studio periods. (Full course.)

631 - Art 490. Design I

Prerequisite : Art 231. A theoretical and practical study of the principles of two and three dimensional design. Special emphasis is given to the study of colour and configuration in various media, as vehicles of visual communication.

Lectures, discussions, studio, field trips are related to various areas of design. (Full course.)

NOTE : — Students who have credit for Fine Arts 413 may not take this course for credit.

631 - Art 491. Drawing for Communications Media

Prerequisites : Art 211, 410. A theoretical and practical course in drawing as a means of visual communication. Drawing is considered in a broad sense as a direct and immediate form demanding many approaches, diverse media, and compositional means. Historical and contemporary works are studied, and then related to fashion, magazine and other forms of mass media illustration. (Full course.)

631 - Art 492. Seminar in the History and Philosophy of Design

Prerequisite : Art 490 previously or concurrently. A seminar to integrate student's studio experience and research as related to the various attitudes, theories, principles, intentions, and functions of the designer in society. Lectures and studio periods. (Full course.)

631 - Art 493. Design III

Prerequisite : Art 490. An investigation of a special design project in conjunction with field research. Lectures, discussions and studio work. Each student will be required to exhibit his work. (Full course.)

631 - Art 494. Design II

Prerequisite : Art 490. A theoretical and practical course in which the principles of design are developed from studio experiences relative to the contemporary graphic image and its historical evolution. Typography, lettering, media, reproduction processes, photography, layout, imagery, symbolism, etc., are considered as expressive means of visual communication. Lectures and studio periods. (Full course.)

CINEMA**632 - Cinema 211. The Art of Film Making**

An introductory course in the theory and practice of film making. This course will stress the individual student's creative efforts. Lectures and laboratory. (Full course.)

632 - Cinema 257. History of the Film

A study of the history of the film from its beginning to the present. The forms, functions, aesthetics and technology of the film will be dealt with through the examination of individual works. (Full course.)

NOTE : — Students who have credit for Fine Arts 257 may not take this course for credit.

632 - Cinema 258. Film Aesthetics

A study of the aesthetics of the film. Symbolism, realism, expressionism, abstraction and other forms of film art will be studied in relation to the great schools and theoreticians in the field. (Full course.)

DRAMA

633 - Drama 212. Stage Design

Prerequisite: Art 231. An introductory course in the design of stage scenery and costume. Lectures and studio periods. (Full course.)

NOTE: — Students who have credit for Fine Arts 212 may not take this course for credit.

633 - Drama 247. The History of the Theatre

Study of the development of theatrical production and the drama brings before the student the whole shifting scene of manners and customs, ideals and moral standards of the ages. This course traces the development of the theatre from the time of the Greek choragic dance to the modern talking-picture and legitimate stage, showing at each step how the culture of that age has been condensed and reflected in the vital and permanent art form of the theatre. (Full course.)

NOTE: — Students who have credit for Fine Arts 247 may not take this course for credit.

633 - Drama 252. The Art of Play Production (Introductory)

A study of the fundamental theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in a practical programme of productions which will entail work in acting, staging, voice production, pantomime, make-up, lighting, and scenic design. Lectures and practice. (Full course.)

NOTE: — Students who have credit for Fine Arts 252 may not take this course for credit.

633 - Drama 421. Voice and Speech

Prerequisite: Drama 252. The theories and practices of oral communication with emphasis on voice mechanics and production. Lectures and practice. (Full course.)

633 - Drama 455. The Art of Play Production (Intermediate)

Prerequisite: Drama 252 or Fine Arts 252. A further study of the theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in a practical programme of productions which will entail work in acting, staging, voice production, pantomime, make-up, lighting, and scenic design. Lectures and practice. (Full course.)

633 - Drama 456. The Art of Play Production (Advanced)

Prerequisite: Drama 455. A study of the advanced theories of the aesthetics of the theatre and their relationship to the arts contributing to production. Students will participate in a practical programme of productions which will entail work in acting, staging, voice production, pantomime, make-up, lighting, and scenic design. Lectures and practice. (Full course.)

MUSIC

634 - Music 233. The Understanding and Appreciation of Music

To enable the student to understand and appreciate the great music of the world, and to develop taste and discrimination in music without the necessity

of learning to play an instrument. The work of the course consists to a great extent in the actual hearing and analysis of the various types of music and composers, and in musically illustrated lectures and discussion. (Half course.)

NOTE: — Students who have credit for Fine Arts 234 or 233 may not take this course for credit.

634 - Music 234. Musical Theory and Form

A more advanced course for the non-performer, affording a more detailed study of musical form, harmony and rhythm, melody, with some consideration of the elementary aesthetics of music. Students with little or no listening experience should take Music 233 previously. (Full course.)

NOTE: — Music 233 and Music 234 may not be taken together.

Students who have credit for Fine Arts 234 may not take this course for credit.

634 - Music 245. The History of Music

A study of the development of music in relation to cultural history from antiquity to the present day, stressing the early formative period up to the peak of polyphonic writing. Topics for discussion will include: Greek, Chinese, and Hebrew music; sacred and secular monody; polyphony; Ars Antiqua; Ars Nova; Netherlands Schools; motet and madrigal; the "classical" outlook; the "romantic" outlook; impressionism; neoclassicism; atonality; jazz and its influence. The course will be illustrated by recordings. No special background of musical training is required. (Full course.)

NOTE: — Students who have credit for Fine Arts 245 may not take this course for credit.

634 - Music 246. Beethoven

Prerequisite: Music 234 or Fine Arts 234 or equivalent. A study of the life and works of Ludwig von Beethoven. Beethoven's compositions as a whole will be surveyed: detailed studies such as the stylistic changes as illustrated in the quartets, advances in formal design, the problem of emotional content, and several other specific topics related to individual compositions will be discussed in full. This course will be illustrated with copious musical examples. (Half course.)

NOTE: — Students who have credit for Fine Arts 246 may not take this course for credit.

FRENCH

Michel Euvrard, *Associate Professor of French*.

Serge Losique, *Associate Professor of French*.

Léandre Bergeron, *Assistant Professor of French*.

Albert Jordan, *Assistant Professor of French*.

Pierre Parc, *Assistant Professor of French*.

Gilbert C. Taggart, *Assistant Professor of French*.

Mair E. Verthuy, *Assistant Professor of French*.

Claude Levy, *Sessional Lecturer in French*.

Since university-level credit cannot be given for French conversation only, all language courses contain a varying quantity of written work, grammatical study and civilization material, as well as oral work.

603 - French 201. Beginners' French

This course is designed for students who lack any previous training in French or who otherwise fail to meet the requirements for admission to French 211. Intensive class instruction and laboratory drill should permit the student to master the basic structures of French in both their written and oral aspects. Satisfactory progress in this course will admit students to French 211. Lectures and laboratory. (Full course.)

NOTE : — Students who have received credit toward their admission for high-school French may not take this course for credit.

Students whose first language is French, or whose schooling has been conducted in French, will not be admitted to this course.

Any student who is not sure of his standing must consult the chairman of the department prior to registration.

603 - French 211. Introduction to College French

Prerequisite : French 201 or four years of high-school French or equivalent. A practical review of structures designed to develop fluency in French by means of intensive oral and written practice. Readings in French-Canadian culture. Lectures and laboratory. (Full course.)

NOTE : — Students whose first language is French, or whose schooling has been conducted in French, will not be admitted to this course.

Students who have credit for French 212 may not take this course for credit.

603 - French 214. Intermediate College French

Prerequisite : French 211 or 212, or equivalent. Oral fluency will be promoted through class discussion and exposés based on current and literary topics. Attention will also be paid to accurate and idiomatic written expression. This course is intended to give suitable command of the language for students intending to study French literature, and for those contemplating or engaged in teaching the language. Enrollment is restricted to twenty students. This course is conducted in French. (Full course.)

NOTE : — Students whose schooling has been conducted in French will not be admitted to this course.

603 - French 221. Introduction to French Literature

Prerequisite : French 211 or 212, or equivalent. No prerequisite for students whose first language is French. This course, designed to act as a preparation for all courses in French Literature, covers the principal literary trends from the Middle Ages to the present day. Students who have taken this course will then be able to relate subsequent and more detailed courses to the general framework of French literature and society, and will have acquired a working knowledge of such essentials as versification and other literary forms, as well as a familiarity with the "explication de texte". This course is conducted in French. (Full course.)

603 - French 222. Modern French Literature

Prerequisite : French 211 or 212, or equivalent. No prerequisite for students whose first language is French. This course is intended mainly for students in Science, Commerce or Engineering, in particular those wishing to take their literature requirement in French. Through study of a limited number of novels, plays and poems of recent years, both French and French-Canadian, the student will have an opportunity to appreciate the characteristics of the different genres. (Full course.)

NOTE : — This course is not an acceptable prerequisite for any other French course.

603 - French 231. French Canadian Literature and Culture

Prerequisite : French 211 or 212; no prerequisite for students whose first language is French. An outline of the development of French-Canadian culture from the earliest times to the present day, with particular emphasis on recent developments. This course is conducted in French. (Full course.)

603 - French 411. Advanced Composition and Stylistics

Prerequisite : French 214. An advanced language course, designed to give the student practice in the finer points of the structure of the French language, together with an insight into its stylistic resources. Enrollment is restricted to twenty students. This course is conducted in French. (Full course.)

603 - French 412. History of the French Language

Prerequisites : French 211 or 212, 214, 221. This course traces the evolution of the language from the Vulgar Latin period to the present day. The successive stages of this evolution will be illustrated by the study of appropriate texts, especially those of the Old French period. This course is conducted in French. (Full course.)

603 - French 413. French Phonetics

Prerequisites : French 211 or 212, 214; alternative prerequisite for students whose first language is French : one credit in French language or literature; this course is open only to students in third or fourth year. A descriptive course in French phonetics, including a study of the physiological formation of sounds and their acoustic aspects. Phonetic transcriptions. Teachers of French will find this course particularly useful, as will students planning to do graduate work in French. This course is conducted in French. (Half course.)

603 - French 414. Comparative Stylistics and Translation

Prerequisite : French 214 : alternative prerequisite for students whose first language is French, one credit in French language or literature. The aim of the course is to investigate the stylistic resources of both French and English and to study comparatively the means available for the expression of the same concept. The course will permit the student to further his knowledge of the different levels of expression in each language, taking into account both syntax and vocabulary. This is *not* a course in commercial translation. (Full course.)

603 - French 421. French Literature of the 16th Century

Prerequisite : French 211. Italian influence; Marot; Rabelais, Ronsard and la Pléiade; Montaigne. (Half course.)

603 - French 422. French Literature of the 17th Century

Prerequisite : French 221. This course covers the great classical period of French literature : the reform of the language, and the formation of the Classical doctrine; the tragic drama of Corneille and Racine; the comedy of Molière; the philosophy of Descartes and Pascal; the moral satire of La Fontaine and La Bruyère; the beginnings of the Novel. (Full course.)

603 - French 423. French Literature of the 18th Century

Prerequisite : French 221. The "century of the philosophers" — The great interest in scientific knowledge, leading to the composition of the Encyclopédie; Montesquieu, Voltaire, Rousseau; the comedy of Marivaux and Beaumarchais; the poetry of Chénier; the beginnings of the Romantic movement; the literature of the Revolution. (Full course.)

603 - French 425. French Literature of the 20th Century

Prerequisite: French 221. A study of the work of major French writers from the beginning of the twentieth century to the present day. (Full course.)

603 - French 427. Nineteenth Century Poetry from Baudelaire to Mallarmé

Prerequisites: French 221; 426 previously or concurrently. The beginnings of modern French poetry — Nerval and Baudelaire. The Parnassiens — Gautier, Leconte de Lisle, Héredia. The Symbolists — Rimbaud, Verlaine, Mallarmé. (Half course.)

603 - French 428. Literature of the Romantic Period

Prerequisite: French 221. The forerunners of Romanticism. — Chateaubriand and Madame de Staél; Lamartine, Vigny, Hugo, Musset (Half course.)

NOTE: — Students who have credit for French 426 may not take this course for credit.

603 - French 429. The Nineteenth Century Novel

Prerequisite: French 221. A study of the novel in France from Stendhal to Zola. (Half course.)

NOTE: — Students who have credit for French 426 may not take this course for credit.

603 - French 431. The Contemporary French-Canadian Novel

Prerequisite: French 231. A study of a selection of important recent French-Canadian novels. (Half course.)

603 - French 432. Contemporary French-Canadian Poetry

Prerequisite: French 231. A study of the works of important recent French-Canadian poets. (Half course.)

603 - French 451. Advanced Study of a Special Subject

Prerequisites: French 221; two additional credits in French Literature. This course, open only to fourth-year students majoring or honouring in French, provides the opportunity of studying a subject in depth. Students work individually under supervisor. (Full course.)

Subject for 1968-69: Pascal and Descartes.

603 - French 461. The French Cinema

Prerequisites: French 211, 214, 221. The aim of this course is to study the French cinema in its vital relationship with contemporary French civilization. Beginning at the close of the last century, the course will be divided into two-week periods, each of which will study a particular step in the evolution of the French film, and will be illustrated by examples. (Full course.)

603 - French 462. The French Theatre

Prerequisites: French 214, 221, or permission of the department. This course covers the history of the French theatre, presenting it not only as part of the French literary tradition, but also as a dynamic process. Aspects of staging will be studied from a historical point of view, through the use of various audio-visual techniques. This course is conducted in French (Full course.)

603 - French 481. Teaching Methods in French

Prerequisites: French, 211, 214, and classroom experience in teaching French, or permission of the department. Principles of Applied Linguistics and their implementation in class. Teaching methods and testing procedures. Outline of audio-visual techniques and their use. The course will facilitate to the maximum degree exchanges of experience and group discussions. (Full course.)

Cognate Course

Linguistics 211. Introduction to Linguistics.

PHILOSOPHY

William Ross Fraser, *Professor of Philosophy, and Chairman of the Department.*

Roger B. Angel, *Associate Professor of Philosophy.*
M. Mobin Ahmad, *Assistant Professor of Philosophy.*

609 - Philosophy 211. A General Study of Philosophical Problems

The purpose of this course is to distinguish philosophy from art, science, and religion; to study the critical work of philosophy with regard to some basic concepts and methods relevant to such fields; and to consider the constructive work of philosophy as shown in the development of major world-views. (Full course.)

609 - Philosophy 221. Great Philosophers, Ancient, Medieval, and Modern

This course aims to make the student conscious of his own intellectual heritage by means of a first-hand acquaintance with the thoughts of those philosophers, from Plato to the present day, who have been most influential in the moulding of the Western mind. It will also illuminate the character of philosophic problems by showing how they persist through a variety of forms, and are restated from age to age. Readings, lectures and discussions. (Full course.)

609 - Philosophy 231. Philosophy of Religion

This course considers the nature, method, and value of religion; the relation between religion and science, and between religion and philosophy; the concepts of God, prayer, evil, freedom, and immortality, and outstanding types of religious philosophy. (Half course.)

609 - Philosophy 241. Ethics

An introduction to theoretical and applied ethics. In this course attention will be given to the history of ethical thought, present philosophic discussion of ethics, and the application of ethics on the personal and social level. (Full course.)

609 - Philosophy 251. Logic

Beginning with stress on different functions of language and on errors in symbolism, this course considers the problem of definition, mediate and immediate inferences, fallacies in deduction, and extension of traditional logic. (Half course.)

NOTE : — Only one-half credit will be given from among Philosophy 251, 451, and 454.

609 - Philosophy 261. Philosophic Ideas in Literature

This course is a critical survey of concepts that have been widely influential through poetry and prose. Theories of beauty, of knowledge, of human conduct and religion, and of cultural change receive special attention. Class discussion on masterpieces in world literature is particularly encouraged. (Full course.)

609 - Philosophy 281. Scholastic Philosophy

The Aristotelian metaphysics. The Thomistic adaption of Aristotle, and its solution of the problems of change, intellection and being. Ethics. Contemporary significance of the traditional philosophy. Modern psychology, physical science and art in the context of this traditional philosophy. (Full course.)

609 - Philosophy 411. Contemporary Philosophy

Prerequisite : Philosophy 211 or 221. A critical study of contemporary tendencies in Logic, Epistemology, Theory of Value, and Metaphysics. There will be readings and class discussions in respect of such philosophers as Santayana, Russell, Whitehead, and Dewey with special reference to their outlook on scientific methodology, education, ethical and aesthetic values, political and economic problems, and the philosophy of religion. (Full course.)

609 - Philosophy 412. Systems of Philosophy

Prerequisites : two credits in Philosophy. This course seeks finer appreciation of attempts to consider man and nature from a persisting point of view. Among the systems of philosophy considered are supernaturalism (including Scholasticism), naturalism (including dialectical materialism), idealism, realism, and pragmatism. Special attention is given to students desiring discussion on implications of various world-views. (Full course.)

609 - Philosophy 413. Contemporary Epistemology

Prerequisite : Philosophy 211. A study of the major issues in contemporary theory of knowledge as they have evolved from the turn of the century to the present day. Special emphasis will be given to such topics as the theory of perception, knowledge of the past, knowledge of other minds, the analytic-synthetic dichotomy and the nature of truth. These matters will be presented through an intensive reading of selected British and American epistemologists. (Full course.)

609 - Philosophy 421. British Empiricism

Prerequisite : Philosophy 211 or 221. This course studies intensively the works of Locke, Berkeley, and Hume. (Full course.)

609 - Philosophy 452. Scientific Methods

In this course, after study of the nature of a scientific system, and of inductive reasoning, there follows an analysis of the principles of causal determination. The next stage deals with the formal requirements of a scientific hypothesis and of hypothetical methods. The logic of the various experimental methods used in testing hypotheses is then carefully examined. After a brief survey of statistical methods, the course ends with a comparison between the experimental and the historical sciences. (Half course.)

609 - Philosophy 453. Philosophy of Science

Prerequisites : Philosophy 452, and 251 or 454, or prior permission of the instructor. This study deals with the analysis of major concepts and pre-suppositions of the sciences and with attempts to formulate a philosophy compatible with the broader implications of scientific theories. Among different interpretations of science, are considered the positivistic, the idealistic and the materialistic. In this course lectures are kept at a minimum, and students present papers to be discussed and criticized. (Full course.)

609 - Philosophy 454. Introduction to Modern Logic

Prerequisites : Philosophy 211 or four credits in Mathematics. Designed for the student who is interested in the technical aspects of logic, this course will introduce him to the techniques of symbolic logic with special reference to valid argument forms, definitions, truth-tables and quantification. (Half course.)

NOTE : — Only one-half credit will be given from among Philosophy 251, 451, and 454.

609 - Philosophy 461. The Logic and Epistemology of History

Prerequisites : two credits in Philosophy and two credits in History, or permission of the department. A critical examination of the problems of knowledge and the language of the historical sciences. (Full course.)

609 - Philosophy 471. The Study of a Given Thinker

Prerequisite : Philosophy 211 or 221. Each year this course concerns one philosopher (ancient, medieval, or modern) of outstanding importance. Special attention is given to the cultural background, the personal development, and the leading theories of the thinker, as well as to critical evaluations of his work. (Full course.)

NOTE : — With the permission of the department, a student may take this course twice for credit, provided that a different philosopher is dealt with the second time. He will register the second time under Philosophy 472.

609 - Philosophy 472. The Study of a Given Thinker

Prerequisites : Philosophy 471 and permission of the department. A student repeating Philosophy 471 a second time for credit registers under Philosophy 472. (Full course.)

RELIGION

Boyd G. Sinyard, *Associate Professor of Religion, and Chairman of the Department.*

Michel Despland, *Assistant Professor of Religion.*

Sheila McDonough, *Assistant Professor of Religion.*

George A.B. Moore, *Assistant Professor of Religion.*

Jean Ouellette, *Assistant Professor of Religion.*

John L. Rossner, *Assistant Professor of Religion.*

610 - Religion 213. The Religions of the World

Historical and critical introduction to the study of religion; the religions of the ancient Near East; Greek and Roman religion; Judaism, Zoroastrianism, Manichaeism, Mithraism and Islam; the religions of India, China and Japan. Consideration is given to the philosophical, theological, ethical and cultural implications. (Full course.)

NOTE : — Only one full credit will be given from among Religion 211, 212, and 213.

610 - Religion 221. Religion, Science and Philosophy

The place of religion in human culture and its relation to other modes of interpreting human existence, particularly science and philosophy. The methodology of the study of religion; the specific content of the religious affirmations of the Judaeo-Christian tradition; their modes of historical development and symbolic expression. Considerable attention is given to current religious thought. (Full course.)

610 - Religion 231. Religion, Ethics and Society

The course attempts to identify ethical issues facing individuals and societies today (e.g. economic inequality, race relations, nationalism, violence and war, sex and personal identity, affluence and anonymity, etc.). The resources of the Judaeo-Christian understanding of man will be considered and their role in the interpretation and resolution of these ethical dilemmas evaluated. (Full course.)

610 - Religion 251. Old Testament Studies

An introduction to the methods and results of contemporary Old Testament scholarship; the history, culture and religion of ancient Israel; critical survey of Old Testament literature. Particular attention is given to the major religious affirmations and theological concepts in this literature which have become central in the subsequent development of the Western religious tradition. (Half course.)

610 - Religion 252. New Testament Studies

An introduction to the methods and results of contemporary New Testament scholarship; a critical survey of New Testament literature considering historical setting, history of text, religious and cultural significance. Attention is given to the central issues and concepts portrayed in the Synoptic, Johannine and Pauline writings and their importance in the subsequent development in the Western religious tradition. (Half course.)

610 - Religion 261. Religion in Canada

The historical development of the major religious traditions in Canada, their influence on the social, political and cultural areas of Canadian life, and their contemporary significance. Attention will also focus on the interaction of Catholic, Protestant, Jewish, Indian and Eskimo groups. (Full course.)

610 - Religion 263. Byzantine and Russian Christianity

The historical, cultural and philosophical significance of Eastern Christianity with particular attention given the Byzantine civilization and the history of Russia. (Full course.)

610 - Religion 411. Hinduism

Prerequisite : third-year standing, or one credit in Religion. A comprehensive study of the religion, philosophy, ethics, history and culture of Hinduism. (Half course.)

610 - Religion 412. Buddhism

Prerequisite : third-year standing, or one credit in Religion. A comprehensive study of the philosophy, ethics and religion of Buddhism, including Zen Buddhism. (Half course.)

610 - Religion 413. Islam

Prerequisite : third-year standing, or one credit in Religion. A study of the rise and development of Islamic religion and culture, with special attention to mysticism and to modernism. (Full course.)

610 - Religion 414. Judaism

Prerequisite : third-year standing, or one credit in Religion. A comprehensive study of the history, law, ethics, religion, philosophy and culture of the Jewish people. (Full course.)

610 - Religion 443. Contemporary Philosophy of Religion

Prerequisites : two full courses in Religion and/or Philosophy or approval of the instructor. An historical study of the major themes of philosophy of religion in the nineteenth and twentieth centuries : the Enlightenment and the Romantic reaction; Schleiermacher and Hegel; the left-wing Hegelians; liberalism, and the neo-orthodox reaction; idealism, naturalism and the religious perspective; positivism, neo-Thomism and contemporary problems. (Full course.)

610 - Religion 444. Existentialism, Phenomenology and Religion

Prerequisites : two full courses in Philosophy and/or Religion. A study of selected works of authors usually associated with this trend in modern philosophy. (Kierkegaard, Nietzsche, Sartre, Jaspers, Camus, Kafka, Buber, Marcel, Tillich, Heidegger, et. al.). Attention is given to existential analysis, philosophical anthropology and phenomenology as these relate to philosophy of religion. (Full course.)

610 - Religion 448. Special Seminar I

Prerequisite : two full courses in Religion, or permission of the department. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (Full course.)

NOTE : — With the permission of the department, a student may take this course twice for credit, provided that a different subject is dealt with the second time. He will register the second time under Religion 449.

610 - Religion 449. Special Seminar II

Prerequisite : permission of the department. A student repeating Religion 448 a second time registers for credit under Religion 449. (Full course.)

610 - Religion 461. The Religious History of Western Man

Prerequisite: third-year standing, or one credit in Religion. An advanced conceptual study of the origins and cultural development of selected religious and ideological structures in the history of Western civilization, from its Ancient Near Eastern and Graeco-Roman beginnings through the Classical, Medieval and Modern Periods. The course concludes with a survey of the ways in which political, social, economic, scientific, psychological and philosophical developments from the Renaissance through the 19th. century have affected the religious perspectives of specific individual men and groups in contemporary 20th. century Western culture. Lectures and assigned basic readings in the overall historical development, with in-depth readings, seminar papers, and discussions on selected topics and problems. (Full course.)

NOTE: — Only one full credit will be given from among Religion 241, 242, 243 and 461.

610 - Religion 462. From Renaissance Humanism to Puritanism

Prerequisite: third-year standing, or one credit in Religion. Religious and intellectual movements in the sixteenth century, including Renaissance Platonism, the Protestant, the Radical and the Catholic Reformation. Attention will focus on the relationship between religious and cultural changes. A study will be made of selected works of the following authors: Petrarch, Ficino, Pico, Bruno, Valla, Colet, More, Cranmer, Erasmus, Luther, Munzer, Calvin, Ignatius and Milton. (Full course.)

CANADIAN STUDIES**613 - Canadian Studies 411. Seminar in Canadian Studies**

Prerequisite: registration in fourth year of the major in Canadian Studies. This is a seminar course in Canadian Studies which involves participation by interested members of the staff as well as by students in the fourth year of the major in Canadian Studies. (Full course.)

SOCIAL SCIENCES DIVISION**SOCIAL SCIENCE**

Jack Goldner, *Assistant Professor of Social Science*.

700 - Social Science 210. General Course in the Social Sciences

This course has a dual purpose: firstly, to introduce the student to some of the basic concepts and subject matter of the various Social Sciences and to demonstrate their inter-relatedness; secondly, to provide the student with some knowledge of contemporary society and the social problems which confront it. (Full course.)

APPLIED SOCIAL SCIENCE

Hedley G. Dimock, *Associate Professor of Applied Social Science, and Chairman of the Department*.

Henry F. Hall, *Professor of Natural Science*.

Robert C. Rae, *Professor of Applied Social Science*.

Richard McDonald, *Associate Professor of Applied Social Science*.

J. Alexander Sproule, *Assistant Professor of Applied Social Science*.

John B. Hopkins, *Lecturer in Applied Social Science*.

708 - Applied Social Science 211. History, Philosophy, and Organization of the Young Men's Christian Association

The origin and development of the YMCA organization on national, international and world-wide scales; institutional patterns and methods of work; the significance of purpose and aims; Christian emphasis in the YMCA. (Half course.)

708 - Applied Social Science 221. Administration of Community Serving Agencies

The development of the administrative process and the principles and methods of administration and organization of community agencies. Specific areas of administration analyzed include personnel, financing, maintenance, public relations, personal efficiency and adequate recording processes. (Half course.)

708 - Applied Social Science 231. Programme Materials and Methods

A course involving some of the specific physical education methods, principles and skills required for leadership in group-serving agencies. The course includes lectures and gym sessions and covers principles, programme planning, tournaments, games and skills, visual aids, etc. (Half course.)

708 - Applied Social Science 241. Camp Leadership and Programme Administration

Prerequisite: previous experience on the staff of a summer camp for a minimum of one summer, or permission of the department. An analysis of the use of the camp setting, programme methods and group experiences in achieving educational goals with children and youth. Consideration of the employment, development and morale of camp staff. Discussion of the effects of various practices on the adjustment and growth of campers. (Half course.)

708 - Applied Social Science 251. Understanding Group Behaviour

Prerequisite: second-year standing. This is a laboratory course which includes participating in a group and analyzing such common group dynamics as leadership, communication, decision making, member roles and sensitivity to others. (Half course.)

708 - Applied Social Science 411. Introduction to Social Gerontology

Prerequisite: previous course in Psychology, Sociology, or Social Science 210. A multi-disciplinary orientation to the study of old age with emphasis on the biological, psychological and sociological aspects of aging. A seminar course designed to acquaint students of all ages with the growing volume of research on aging. (Half course.)

708 - Applied Social Science 413. Adolescent Behaviour in Urban Areas

Prerequisite: second-year standing. A survey of adolescent values, family and group relations, social mobility, friendship patterns, educational and vocational adjustment with a focus on understanding social behaviour in urban communities. Attention will also be given to programmes attempting to enhance adolescent development and reduce social problems. (Full course.)

708 - Applied Social Science 431. Group Development and Supervision

Prerequisite : second-year standing. Orientation to systematic group development in community-serving organizations. Development of understanding and skill in using group procedures to facilitate communication and decision making in small groups, classes and committees. Focus on helping others improve their functioning with groups through supervision and training. Each student will study the development of an agency group throughout the year. (Full course.)

708 - Applied Social Science 441. Community Development

Prerequisite : Sociology 211. Orientation to systematic community problem solving dealing with communications, assessment of needs, decision making, and inter-group relations, drawing on the contributions of the social sciences. (Half course.)

708 - Applied Social Science 451. Principles and Practices of Guidance

Prerequisite : Psychology 211 or Sociology 211. Principles and methods of counselling and guidance with particular reference to their application in the setting of the community-serving organizations. Organization and administration of a guidance service including measurement and appraisal, techniques of counselling, occupational and educational information, and referral, will be considered. (Half course.)

708 - Applied Social Science 452. Introduction to Counselling in Community Service Organizations

Prerequisites : Psychology 211 or Sociology 211; Applied Social Science 451. A survey of typical problems; information, techniques, principles, policies and points of view useful to professional staff in community-serving organizations; focus on educational, vocational and relationship problems, and the use of counselling techniques in staff relations and supervision. (Half course.)

708 - Applied Social Science 461. Social Welfare and the Social Welfare Services

Prerequisite : third-year standing, or permission of the department. A general course concerned with social welfare problems in modern society; some analysis of these problems in relation to economic and cultural patterns. A description of the functional settings in which social welfare services are practiced. A consideration of the methods used in social welfare, and some consideration of the connective links between social welfare services and religion, law, medicine, nursing, teaching and other professions. (Full course.)

NOTE : — Students who have credit for Applied Social Science 462 may not take this course for credit.

708 - Applied Social Science 471. Projects Seminar

Prerequisite : open to all fourth-year majors in Applied Social Science with permission of the department. A seminar course for field projects, surveys and research studies undertaken by each student. (Full course.)

708 - Applied Social Science 481. Special Seminar in Applied Social Science

Prerequisites : Psychology 211, Sociology 211 and permission of the department. The subject for the seminar will vary from year to year reflecting recent developments in social change, new approaches in the behavioural sciences, or the special interests of the instructor. (Full course.)

ECONOMICS

Arthur Lermer, *Professor of Economics, and Chairman of the Department.*
 Muriel Armstrong, *Associate Professor of Economics.*
 Morido Inagaki, *Associate Professor of Economics.*
 Shreekanth A. Palekar, *Associate Professor of Economics.*
 Abraham Tarasofsky, *Associate Professor of Economics.*
 Vivian C. Walsh, *Associate Professor of Economics.*
 A. Anastasopoulos, *Assistant Professor of Economics.*
 John P. Barrados, *Assistant Professor of Economics.*
 Benson S. Brown, *Assistant Professor of Economics.*
 Voyo Kovalski, *Assistant Professor of Economics.*
 George Lermer, *Assistant Professor of Economics.*
 Balbir S. Sahni, *Assistant Professor of Economics.*
 Robert N. Rand, *Lecturer in Economics.*
 Barry D. Rosenfeld, *Lecturer in Economics.*
 M. Stelcner, *Lecturer in Economics.*
 George G. Davidovic, *Visiting Professor of Economics.*
 A. G. Frank, *Visiting Professor of Economics.*
 B. Higgins, *Visiting Professor of Economics.*

Commerce students interested in general courses in Economics should take in addition to Economics 211, — Economics 221, 271, 411, 424, 451 or 461.

701 - Economics 211. Introduction to Economics

While this course is an essential introduction for the student who is proceeding to other courses in economics, it is designed to inform every student, whatever his field may be, of some of the basic principles of modern economic theory and their relationships to everyday business. The concept and purpose of national income analysis is explained, and the inter-related problems of consumer spending, saving and investment are discussed with special reference to the banking system, credit policies and the role of government in the business world today. This is co-ordinated with an outline of the theory of the firm and the relation of the individual firm to the whole economy, tracing the process of price-determination through an analysis of the concepts of competition and monopoly. (Full course.)

NOTE : — Students who have credit for Economics 213 may not take this course for credit.

701 - Economics 213. Introductory Economics

Prerequisite : 65% in high-school Trigonometry and Intermediate Algebra, or equivalent. This course will cover the same material as Economics 211. The better mathematical training required will allow the material to be covered somewhat more rigorously. (Full course.)

NOTE : — Students who have credit for Economics 211 may not take this course for credit.

701 - Economics 221. General Economic History

The central theme is the problem of economic growth in the past. Following a brief study of ancient civilizations and the early middle ages, extensive treatment will be given to economic problems of western Europe between the 11th and early 18th centuries. Emphasis will be placed on the industrial revolution and its effects on contemporary patterns of economic and social organization. The course will then proceed to the 19th and early 20th century with particular attention given to the 1914-1932 period. (Full course.)

701 - Economics 281. Mathematics for Economists

Prerequisite : Economics 211 or 213. The course covers some of the mathematics frequently used in economic theory and econometrics. The mathematical tools are applied to a variety of economic models and econometric problems. This course is *not* a prerequisite for any other course in Mathematical Economics. It is a terminal course for the general student in economics which will allow him to understand economic theory better, and to read much of the literature. (Full course.)

NOTE : — Students who have credit for Mathematics 450 or 451 may not take this course for credit.

701 - Economics 411. Intermediate Economic Theory

Prerequisite : Economics 211 or 213. This course is designed for the student honouring or majoring in economics. It is a basic course in micro-economic theory; market price determination, theory of consumer demand, theory of the firm, and distribution theory. (Full course.)

NOTE : — Students who have credit for Economics 413 may not take this course for credit.

701 - Economics 412. Advanced Economic Theory

Prerequisites : Economics 211 or 213; 411 or 413; or permission of the department. An extension of Economics 411 with special emphasis on the theory of the firm and the theory of distribution. (Full course.)

**701 - Economics 413. Microeconomic Theory
(Mathematical Approach)**

Prerequisites : Economics 211 or 213; Mathematics 450 or 451; Mathematics 411 or equivalent, previously or concurrently. This is a course in intermediate microeconomic analysis. It covers the principal mathematical tools required to deal with constrained maximization problems. These tools are used to cover the same topics as in Economics 411. (Full course.)

NOTE : — Students who have credit for Economics 411 may not take this course for credit.

**701 - Economics 421. History of Economic Thought, Ideas,
and Theories**

Prerequisites : Economics 211 or 213; 411 or 413. A brief study of the development of economic thought, with special emphasis on the classical and Neo-classical period, as an introduction to modern economic theories. (Full course.)

701 - Economics 422. Economic Development

Prerequisite : Economics 211 or 213. A study of the general principles and problems of economic development of countries such as India, Indonesia, the Philippines and Mexico. The empirical analysis will center on problems of capital formation, fiscal policies, population growth, foreign investment, supply of entrepreneurship, and the general institutional framework of these countries. The theoretical analysis will examine critically the content and applicability of the various growth models including the classical, Marxist, Schumpetarian, Harrod-Domar, Rostow models of economic growth and techniques of development planning in terms of investment criteria and priorities. (Full course.)

**701 - Economics 423. Regional Economics and the
Economic Development of Quebec**

Prerequisite : Economics 211 or 213. Theories of industrial agglomeration, city and metropolitan formation. Economic structure of regions, with emphasis on Quebec's economic development and the regional aspects of its growth problems. Students taking this course may also be interested in Economics 427. (Half course.)

701 - Economics 424. Canadian Economic Development

Prerequisite : Economics 211 or 213. This course is designed to introduce the student to Canadian economic development from the early period of settlement to the present day. Emphasis will be placed on problems and policies of the Canadian economy. (Full course.)

701 - Economics 425. Studies in Economic Growth

Prerequisites : Economics 211 or 213, 422, or permission of the department. A seminar on planning for growth in developed and developing economies with reference to indicative (mixed economies) and collective planning systems. (Half course.)

701 - Economics 426. Seminar in Economic History

Prerequisites : Economics 211 or 213, 221, or permission of the department. An attempt to relate the economic development of major countries in the modern world (in Asia, Europe, and North America), to trace the history of forms of economic organization, institutional development and technology, and to test some basic principles of economic theory by historical evidence. (Half course.)

701 - Economics 427. Theory of Industrial Location

Prerequisite : Economics 211 or 213. This course deals primarily with the economic determinants of industrial location such as, for example, transportation, labour, motive-power and other basic factors, with particular reference to federal-provincial relations. Students taking this course may also be interested in Economics 423. (Half course.)

**701 - Economics 428. Economic History and Development of
the United States**

Prerequisite : Economics 211 or 213. This course will deal with the economics of the colonial period, the economic causes of the American Revolution, the role of the North Atlantic Triangle (the U.S., Great Britain and Canada), American economic development prior to and after the Civil

War until and including the Great Depression. Following the New Deal period emphasis will be placed on the war economy and postwar economic development. The Postwar U.S. International Trade and Aid Policy will also be covered. (Full course.)

701 - Economics 429. Latin American and Caribbean Economic Development

Prerequisites: Economics 211 or 213, 422. This course deals with the socio-political background of the area since the establishment of independence in the respective nations. While a general approach to the development of the continent as a whole will serve as a point of departure, some sub-areas representing different patterns of development or economic retardation will be treated. Special emphasis will be placed on the role of ideologies, governments in the process of economic growth, the position of entrepreneurship, capital formation, agriculture, interregionalism, and external economic aid. (Full course.)

701 - Economics 431. Economic Policy

Prerequisite: Economics 211 or 213. A study of government economic policy with emphasis on Canadian policy problems. Topics will include government regulation of business, commercial policy, policies to encourage growth, social security, and, to a very limited extent, monetary and fiscal policy. (Full course.)

701 - Economics 444. Marxism and the Communist Economies

Prerequisite: Economics 211 or 213. Comparative analysis of communist economic systems, taking two or three representative systems as examples. The social and ideological forces affecting the economic development of selected communist countries. The basic structure of their economies. State planning and administrative procedures. The main emphasis on the effect of planning upon economic growth; the problem of allocation of capital and the priority of growth; economic efficiency versus expediency; alternative means of achieving greater economic growth. (Full course.)

701 - Economics 445. Contemporary Capitalism and the Welfare State

Prerequisite: Economics 211 or 213. The course is concerned with an analysis of the structural and institutional features of contemporary free market economies, with particular emphasis on the institutional characteristics which govern the distribution of income. It is further concerned with the institutions and policies set up by modern states in pursuance of redistributive social welfare schemes, or policies of growth and employment ("planning"), with particular reference to the experience of Great Britain, Sweden, France and other countries. (Half course.)

701 - Economics 446. Welfare Economics

Prerequisites: Economics 211 or 213; 411 or 413. An introductory study of the concepts, assumptions and propositions of theoretical welfare economics. A brief review of the welfare propositions inherent in the writings of classical and neo-classical economists, followed by a study of Pigovian welfare economics and the "new" welfare economics associated with the names of Pareto, Hicks, Bergson and others. (Half course.)

701 - Economics 451. Money and Banking

Prerequisite: Economics 211 or 213. A general study of the modern theory of income determination and of the principles of commercial and central banking. In particular, the course will deal with the nature and functions of money, national income accounting; some aspects of modern monetary theory, monetary and fiscal policy, commercial and central banking as an instrument of monetary policy, the structure and mechanism of the modern money market, foreign exchange and the problem of inflation. Special emphasis will be laid on monetary and banking problems in Canada. (Full course.)

NOTE: — Students who have credit for Economics 452 may not take this course for credit.

701 - Economics 452. Macroeconomic and Monetary Theory

Prerequisite: Economics 211 or 213. A basic course in macroeconomic and monetary theory; with particular reference to the role of monetary institutions and monetary policies. (Full course.)

NOTE: — This course is intended primarily for students honouring and majoring in Economics. Others should take Economics 451.

Students who have credit for Economics 451 may not take this course for credit.

701 - Economics 453. Economic Fluctuations

Prerequisites: Economics 211 or 213; 451 or 452. A survey of theories advanced to explain economic fluctuations in industrial economies and a discussion of monetary, fiscal and other policies that may be used to mitigate such fluctuations. (Full course.)

701 - Economics 454. Public Finance and Fiscal Policy

Prerequisite: Economics 211 or 213. A general study of the principles and practice of government finance; taxation powers and practice in Canada by the federal, provincial and municipal governments; taxation theories; the use of the budget to influence the economy; techniques of deficit and surplus finance; the public debt. (Full course.)

701 - Economics 461. International Economic Relations

Prerequisite: Economics 211 or 213. Postwar international institutions: IMF, GATT, etc. The international monetary system, its problems and proposed reforms. Currency areas, exchange control systems and clearing systems. European integration and the common market. (Half course.)

701 - Economics 462. Theory of International Trade

Prerequisites: Economics 211 or 213; 411 or 413; 451 or 452; or permission of the department. A study of the theories of comparative costs and reciprocal demand and their development; the theory of factor reward equalization; the theory of foreign exchanges; the theory of tariffs; customs union theory, and related topics in the theory of international trade. Emphasis will be placed upon the theoretical rather than the institutional analysis of international economics, though the theories will be illustrated by consideration of current problems in international economic affairs. (Full course.)

701 - Economics 471. Labor Economics and Labor Relations

Prerequisite: Economics 211 or 213. A study of the theoretical and institutional aspects of labor relations. In particular, the course will deal with the principles of wage determination; a study of the relation between wages and employment, wages and prices, labor's share of the national income, the impact of the union on wage determination; the problem of full employment and unemployment; the structure and philosophy of labor organization; the principles and practice of collective bargaining, role of government in labor disputes, wage regulation and social security; labor problems in underdeveloped countries. Special emphasis will be placed on labor problems in Canada. (Full course.)

NOTE: — Students who have credit for Economics 271 may not take this course for credit.

701 - Economics 482. Introduction to Econometrics

Prerequisites: Economics 211 or 213; 411 or 413; Mathematics 251 or equivalent; one of Quantitative Methods 242, Mathematics 440 or 441. This course will introduce the theory of econometrics. It will include an examination of the linear normal regression model and such problems as errors in variables, autocorrelation, multicollinearity, identification. Lectures and practice period. (Full course.)

701 - Economics 484. Mathematical Models in Economics

Prerequisites: Mathematics 450 or 451; one of Economics 411, 413, 451, 452; or permission of the department. An examination of static and dynamic economic models including applications of differential and difference equations. Lectures and practice period. (Half course.)

NOTE: — Students who have credit for Economics 483 may not take this course for credit.

701 - Economics 485. General Equilibrium Analysis

Prerequisites: Mathematics 450 or 451; one of Economics 411, 413, 451, 452; or permission of the department. An introduction to general equilibrium analysis, including applications of matrix algebra. Lectures and practice period. (Half course.)

NOTE: — Students who have credit for Economics 483 may not take this course for credit.

701 - Economics 491. Advanced Study in a Special Subject

Prerequisite: permission of the department. This course is designed primarily for Honours and major students. Its purpose is to provide an opportunity for advanced students to intensify their study beyond the traditional areas of specialization already represented by the curriculum. The selected subject will vary with the special interest of the respective instructor offering the course in any given year. (Full course.)

EDUCATION

John MacDonald, *Professor of Education*.

Mark Braham, *Assistant Professor of Education*.

Martha Crampton, *Assistant Professor of Education*.

702 - Education 212. The Nature and Function of Teaching

Prerequisite: second-year standing. An introduction to the purpose, theories and methods of teaching. (Full course.)

702 - Education 221. Adult Education

This course is intended for all who are interested in adult education, whether professionally concerned with it or not. The history, organization, philosophy, and problems of adult education both formal and informal will be discussed with particular emphasis upon the current developments in Canada. (Half course.)

702 - Education 231. Education in Canada

Federal and provincial organization and administration with primary consideration given to the historical development of Quebec's public school system, and to Quebec school law. (Half course.)

702 - Education 411. Philosophy of Education

Prerequisite: third-year standing. Philosophy of education as the critical analysis and constructive synthesis of theories, concepts and ideas in educational thought and practice. (Full course.)

702 - Education 431. History of Educational Ideas

Prerequisite: third-year standing. The evolution of educational thought in cultural perspective.

NOTE: — Students who have credit for Education 211 may not take this course for credit.

Cognate Course**Psychology 482. Psychology of Human Learning in the Classroom.****GEOGRAPHY**

Harry A. Clinch, *Associate Professor of Geography and Chairman of the Department*.

Ronald W. Bryant, *Associate Professor of Geography*.

Michael Marsden, *Assistant Professor of Geography*.

Brian Slack, *Assistant Professor of Geography*.

James W. Young, *Assistant Professor of Geography*.

Mona Macfarlane, *Lecturer in Geography*.

Morris L. Wood, *Lecturer in Geography*.

Bogdan Zaborski, *Visiting Professor of Geography*.

703 - Geography 211. Introduction to Human Geography

Considers the earth as the home of man. A general introduction to geography, which is intended to encourage an appreciation of the relationship existing between physical and cultural distributions over the earth's surface. This course will be concerned with man-land relationships. The broad global patterns of climate, vegetation, relief, soils, and natural resources will be reviewed. The use of maps, charts, diagrams, on the part of the students will be encouraged. Area studies will be introduced from time to time to illustrate the role of geography. Each student will be responsible for a term paper describing, accounting for, and explaining the distribution of population within some given area. (Full course.)

703 - Geography 221. Geography of the Oceans

A general study of the world's oceans from a physical, biological, and human point of view. (Full course.)

703 - Geography 231. Introduction to Physical Geography

An introduction to the earth sciences as they relate to the environment of man, with special emphasis upon weather, climate and the evolution of landscape. (Full course.)

NOTE : — Students who have credit for Geography 232 may not take this course for credit.

703 - Geography 251. Economic Geography

This course deals with the way in which geographic conditions influence, and have influenced, the products, the occupations and the ways of life of the various peoples of the world, and provides an understanding of the natural resources of the world, and the geographical factors which affect their exploitation, transportation and use in the satisfaction of wants. (Full course.)

703 - Geography 261. General Cartography

A general study of the map as the tool of the geographer. The course will include a history of cartographic development from the earliest times to the present. Emphasis will be placed on map scale; map projection; map symbolism; map reading and usage. The use and interpretation of ground and air surveys and such cartographic specialities as diagrams, statistical maps, cartograms, globes and models. Exercises and assignments of a practical nature involving the construction of maps will be expected from all students enrolled. (Full course.)

703 - Geography 411. Historical and Political Geography of Europe

Prerequisite : Geography 211 or History 213. An historical and political survey of Europe with emphasis on the development of Western European nations from the earliest time to the present. In the modern period emphasis will be placed on the geography of current events and geopolitics. (Full course.)

703 - Geography 412. World Political Geography

Prerequisites : Geography 211 and 251; or 411. A basic study of the concepts of political geography. These concepts will be developed by a series of case studies on particular states and boundary problems. (Full course.)

703 - Geography 421. Historical and Political Geography of the United States

Prerequisite : Geography 211 or 251, or History 251. A survey of exploration, colonization and settlement patterns in the United States. Sectional and regional divisions within the United States, their expression in the internal politics of the United States, and the geopolitical position of the United States in the modern world will be examined. (Full course.)

703 - Geography 422. Historical and Political Geography of Quebec and Ontario

Prerequisites : Geography 211 or 251; 261, 441. A study of a historical nature of past geographic patterns — economic, social, cultural and political in Quebec and Ontario. (Full course.)

703 - Geography 431. Urban Geography

Prerequisites : Geography 211 or 251; 441. A study of the prehistoric town, the Greek and Roman town, towns in the Middle Ages, the trading city, the pioneer town and the modern metropolis. The distribution of such towns, their development, growth and internal pattern of organization will be looked at from an historical and geographical point of view. Problems of conurbations and large metropolitan cities in the present age will be discussed and evaluated. Special emphasis will be given to Canadian cities, to their site, function, organization, growth and development as well as to urban problems relating to zoning, transportation, urban renewal, etc. (Full course.)

703 - Geography 432. World Frontiers of Settlement

Prerequisites : Geography 211, 251. A study of areas of the world where active settlement is being, or might be carried out. (Half course.)

703 - Geography 433. Canadian Frontiers of Settlement

Prerequisites : Geography 211, 251, 432, 441. A detailed study of the present day pioneer areas of Canada. (Half course.)

703 - Geography 436. Regional Studies

Prerequisites : two credits chosen from Geography 211, 251, 261, 441. The course will examine the nature of regions and the problems of delimiting their boundaries. Different types of geographical regions will be studied; physical, economic, social, cultural, political, and detailed case studies will be used as examples. The course will also outline some of the problems confronting the regional planner. (Full course.)

703 - Geography 441. Geography of Canada, Past and Present

A study of Canada, past and present based on the various natural regions into which the country is divided. In the first half of the course an historical-geographic approach will be taken to bring to the student's attention the main trends in Canadian cultural and historical development from aboriginal times to the present. The changing nature of man-land relationships at different periods of time, and under different forms of occupancy will receive particular attention. In the second half of the course the present day pattern of human occupancy on a regional and national basis will be analyzed. Special studies on regional problems and on particular economic, social, or political lines of general interest will be included in the course. All students will be expected to complete a term paper for credit. (Full course.)

703 - Geography 443. Geography of the U.S.S.R.

Prerequisite : Geography 211 or 251 or equivalent. A regional study of the U.S.S.R. covering physical, economic, social and cultural distributions. (Full course.)

703 - Geography 444. Polar Lands

Prerequisite : Geography 211 or 231. A regional study of the Arctic and Sub-Arctic areas with some reference to Antarctic conditions. The physical environment, history of exploration and settlement, resources and transportation networks are described in some detail, but there is an emphasis upon study of the northlands as a series of relatively simple case histories with lessons which may be applied in any underdeveloped area. (Full course.)

703 - Geography 445. Study of a Selected Region

Prerequisite : Geography 211 or 251. A study of the physical, economic, social and cultural patterns of a selected region. This course will emphasize present day problems. Different areas will be dealt with from year to year, selected from the Indian Peninsula, South East Asia, China, and the Caribbean. (Full course.)

703 - Geography 451. Prehistoric Geography of Europe, Asia and Africa

Prerequisite : Geography 211 or History 211 or Anthropology 211. This course will deal with the basic environmental archaeology of early man. A direct scientific scrutiny of the primary importance of changing geographic factors on the distribution, evolution, migration, occupancy patterns, subsistence and social life of early man. The course has three main sections — early food gathering man, the first farming and the growth of civilizations. (Full course.)

703 - Geography 456. Advanced Economic Geography

Prerequisite : Geography 251 or equivalent. The first part of this course examines factors affecting the location of industries and industrial regions, and outlines the various theories of industrial location. Case studies of particular industries will be used as illustrations. In the second term, study will focus on the distribution of market and retail distributions. Particular attention will be paid to Central Place Theory. (Full course.)

703 - Geography 457. Resource Utilization and Conservation

Prerequisite : Geography 251. The resource concept and concepts of conservation. The regional approach to resource management. Case studies of the problems in developing particular natural resources and of interstate areas of poor economic health, with emphasis on the regional and natural parts of such developments. Special emphasis will be given to Canadian problems and those of selected underdeveloped countries. (Full course.)

703 - Geography 461. History of Geographical Thought

Prerequisites : Geography 211 and one additional credit in Geography. A study of the development of the field of geography from ancient times down to the present. Representative geographical works of the Greeks, the Romans, and of the Middle Ages. The Age of Discovery, the 19th and the 20th centuries will be examined and discussed. The present day concepts of the field and function of geography will receive special attention. (Half course.)

703 - Geography 466. Applied Cartography

Prerequisites : Geography 261 and two additional credits in Geography. Advanced techniques in map and diagram making and usage related to all aspects of human and physical geography, with special emphasis on the practical solution of cartographic problems. Practice periods and assignments. (Full course.)

703 - Geography 471. Plant and Animal Geography

Prerequisite : Geography 211 or 231 or 251. A study of past distribution and dispersal of plants and animals with emphasis upon their present pattern of geographic distribution. (Full course.)

703 - Geography 472. Advanced Physical Geography

Prerequisite : Geography 231. A review of modern theories and techniques in geomorphology, hydrology, pedology, denudation chronology, and landscape classification. The course includes a discussion of the Pleistocene Epoch in terms of applied research methods. (Full course.)

703 - Geography 473. Climatology

Prerequisite : Geography 231 or Physics 211 or Mathematics 440 or 441. A study of the physical and dynamic controls of climate. Methods of evaluating past and present climates. There will be some emphasis upon the many applications in fields other than geography of both the methods used and the knowledge obtained. (Full course.)

703 - Geography 491. Honours Essay

Prerequisite : open to fourth-year Honours students, or by permission of the department. Each student must prepare and submit an appropriate research paper, under the supervision of the department. (Full course.)

HISTORY

E. E. McCullough, *Professor of History, and Chairman of the Department.*
 E. D. Genovese, *Professor of History.*
 Martin Lewis, *Professor of History.*
 J. Cameron Nish, *Associate Professor of History.*
 Alan H. Adamson, *Assistant Professor of History.*
 Walter J. Ausserleitner, *Assistant Professor of History.*
 Frank A. Chalk, *Assistant Professor of History.*
 S. H. Elwitt, *Assistant Professor of History.*
 John L. Hill, *Assistant Professor of History.*
 John F. Laffey, *Assistant Professor of History.*
 Stephen J. Scheinberg, *Assistant Professor of History.*
 Irving H. Smith, *Assistant Professor of History.*
 C. L. Bertrand, *Lecturer in History.*
 J. Terry Copp, *Lecturer in History.*
 Jose E. Igartua, *Lecturer in History.*
 Robin B. Burns, *Sessional Lecturer in History.*
 A. G. Frank, *Visiting Professor of History.*
 Aileen S. Kraditor, *Visiting Professor of History.*
 S. Shah, *Visiting Professor of History.*

400 — level courses should be attempted only by those who have had one or more courses at the introductory level.

704 - History 211. History of Ancient and Medieval Civilization

The story of early mankind is outlined, and the origins of the great civilizations of Europe and Asia are studied. After surveying the classical civilizations, the course concludes with a study of the medieval period. (Full course.)

NOTE : — This course does not fulfill prerequisite requirements for advanced courses in History.

704 - History 213. History of Europe in the Modern World

A survey of European civilization from the 15th century to the present day. An attempt is made to present an integrated picture of all aspects of European cultural in the period of its rise to a dominant position in the world. (Full course.)

704 - History 221. History of Canada Since 1534

A study of the growth of Canada from the age of exploration to the present time. Emphasis is placed on the political, economic and cultural developments which are of significance in the understanding of the problems of today. (Full course.)

704 - History 251. History of the United States

This course deals with the growth of the United States from the time of discovery to the present time. The character of the population, the government, and the various voluntary political and labour organizations is studied from an historical point of view. Special attention is paid to the development of foreign policy and to the present position of the country in world affairs. (Full course.)

NOTE : — Students who have credit for History 451 may not take this course for credit.

704 - History 261. Asia, Africa and the West

A survey of the history of Asia and Africa in modern times, stressing the interaction between the indigenous civilizations of these continents and that of the West, and the inter-relationships between developments in Eastern and Southern Asia, the Middle East, and Africa. (Full course.)

NOTE : — Students who have credit for History 461 or 462 may not take this course for credit.

704 - History 413. History of European Diplomacy, 1870 to the Present

Prerequisite : History 213 or Political Science 421. An intensive study of the relations amongst the Great Powers of Europe from the Franco-Prussian War to the present. (Full course.)

704 - History 414. History of Early Modern Europe, 1400-1715

Prerequisite : History 213. European history during the period of the Renaissance and the Reformation, including a study of the foundations of the political and economic systems of modern times. (Full course.)

704 - History 415. Enlightenment and Revolution, 1715-1850

Prerequisite : History 213. European history in the age of the French Revolution, including a study of the scientific and industrial revolutions. (Full course.)

704 - History 416. Europe Since 1850

Prerequisite : History 213. A study of the internal development and external relations of the most important states of western Europe since the middle of the 19th century. (Full course.)

704 - History 422. History of New France, 1534-1760

Prerequisite : History 213 or 221. An intensive study of Canada during the colonial regime. It will be of benefit to students if they have completed French 211 before taking this course. (Full course.)

704 - History 423. History of British America, 1760-1867

Prerequisite : History 213 or 221. An intensive study of Canada from conquest to confederation. (Full course.)

704 - History 424. History of Canada Since 1867

Prerequisite : History 213 or 221. An intensive study of the political, economic and cultural development of Canada since Confederation. (Full course.)

704 - History 425. Reading Course in the History of the Americas

Prerequisites : History 472 previously or concurrently, and written permission of the History Programme Advisor. Prescribed readings in a period of Canadian, American or Latin American history. No lectures; consultation only. (Half course.)

704 - History 426. History of Quebec, 1759-1965

Prerequisite : History 221 or 424 previously or concurrently. An intensive study of Quebec since its conquest by the English. While due importance will be devoted to the political history of Quebec, the purpose of the course is to provide a study in depth of the social, economic and cultural institutions of Quebec. (Full course.)

704 - History 431. History of Britain, 1485 to the Present

Prerequisite : History 212 or 213; students Honouring in English may register without prerequisite. A survey of the political, economic, and social development of modern England. Emphasis is placed on the evolution of parliamentary government in the early period, on the economic changes of the eighteenth and nineteenth centuries, and on the modern growth of democracy and the social service state. (Full course.)

704 - History 433. Reading Course in European and World History

Prerequisites : History 472 previously or concurrently, and written permission of the History Programme Advisor. Prescribed readings in a period of European, Asian or African history. No lectures; consultation only. (Half course.)

704 - History 441. History of Russia

Prerequisite : History 213. This course traces the origin of the Slavic-speaking peoples in Europe and the emergence of the Russian Empire. It discusses the ideology and history of bolshevism, and the period under communist government in the U.S.S.R. and among the Slavic peoples. (Full course.)

704 - History 443. Economic and Social History of Modern Europe

Prerequisite : History 213 or Economics 221. A study of the transformation of European society under the impact of the economic revolution of modern times. (Full course.)

704 - History 444. European Intellectual History

Prerequisite : History 213. A study of the main currents of thought which have accompanied and influenced the development of modern Europe. (Full course.)

704 - History 452. History of Latin America

Prerequisite : History 213. This course deals with the political, social and economic history of Latin America from the founding of the Spanish Empire to the present day. The development of the principal independent republics is studied, and attention is given to the growth of Inter-Americanism and to the place of Latin America in the modern world. (Full course.)

704 - History 453. History of Colonial America

Prerequisite : History 213 or 221. A comparative survey of the Spanish and English empires in America from the age of exploration to the end of the colonial regimes. Political, social and economic developments will be studied in their relation with those of the other colonies and with the later growth of the societies concerned. (Full course.)

704 - History 455. Foreign Relations of the United States

Prerequisite : History 213 or 251 or 451. A study of United States foreign policy from the revolution to the present time, with emphasis on the period since 1890. (Full course.)

704 - History 456. History of the United States Since 1900

Prerequisite : History 213 or 251 or 451. This course deals with domestic developments in the United States in the twentieth century, including politics, intellectual life, industry and labour. (Full course.)

704 - History 457. The Jacksonian Era in the United States

Prerequisite : History 213 or 251. The development of American political, social and economic life in the early decades of the 19th century. (Half course.)

704 - History 458. Civil War and Reconstruction in the United States

Prerequisite : History 213 or 251. Sectionalism and expansion in the middle decades of the 19th century, the characteristics of plantation slavery as a social system, the coming of the Civil War, and the aims and outcome of Reconstruction. (Half course.)

704 - History 461. History of South and Southeast Asia

Prerequisite : History 213 or 261. A study of the historical background of India, Pakistan, and the states of Southeast Asia. The course begins with a review of indigenous developments prior to the era of European expansion and proceeds to a more detailed examination of the political, social, and economic changes in modern times, concluding with a study of the problems faced by these countries since the achievement of independence. (Full course.)

704 - History 462. History of East Asia

Prerequisite : History 213 or 261. The course begins with a review of the traditional societies of China and Japan, and then examines the contrasting response in the two lands to the impact of Western imperialism in the nineteenth and twentieth centuries, concluding with a study of developments since the Second World War. (Full course.)

704 - History 472. Historical Method

Prerequisites : at least two credits in History, and written permission of the History Programme Advisor. A course in the application of modern historical criticism to a specific problem to be chosen in consultation with the instructor. (Full course.)

704 - History 473. Advanced Study in a Special Subject

Prerequisite : permission of the department. This course, intended primarily for Honours or major students, affords an opportunity for more intensive examination of a particular historical theme than is possible in the normal lecture course. The specific subject will vary according to the special interest of the professor offering the course in any given year. (Full course.)

704 - History 474. Honours Essay

Prerequisites : History 472, and written permission of the History Programme Advisor. Individual tutorials and supervision of research paper begun in History 472. (Half course.)

NOTE : — Students who have credit for History 471 may not take this course for credit.

704 - History 481. History of Africa

Prerequisite : History 213 or 261. A survey of the early history of Africa followed by a more intensive study of the past century. Special emphasis is given to the changes in Africa resulting from contact with European civilization. (Full course.)

707 - History-Sociology 493. History and Sociology

Prerequisites : an introductory course in History and in Sociology, and third or fourth-year standing. An exploration of the relationships between historical and sociological approaches to the description and analysis of social conditions and social events, paying special attention to questions of methodology and conceptualization. (Full course.)

NOTE : — This course may be counted as a credit in either History or Sociology.

Cognate Course**Classics 211. History of Greece and Rome****POLITICAL SCIENCE**

H. F. Quinn, *Professor of Political Science, and Chairman of the Department.*

Klaus J. Herrmann, *Associate Professor of Political Science.*

Lalita P. Singh, *Associate Professor of Political Science*

Harold M. Angell, *Assistant Professor of Political Science.*

Paris J. Arنopoulos, *Assistant Professor of Political Science.*

Robert A. Fraser, *Assistant Professor of Political Science.*

Leslie Laszlo, *Assistant Professor of Political Science.*

705 - Political Science 211. Introduction to Political Science

A study of the origin and nature of the State, and the relation of the individual to it. The course will deal with the nature and interpretation of law, constitutions, division of powers of government, organization of political parties, formation of public opinion, the function of parliaments, the different types of cabinet and presidential systems, federalism, and problems of public administration. (Full course.)

705 - Political Science 251. Government and Politics of Canada

A study of the British North America Act and its judicial interpretation; the nature of Canadian federalism; the parliamentary system; nature and organization of political parties; provincial and municipal governments; law and the courts; foreign policy. (Full course.)

705 - Political Science 291. Elements of Law

This course is designed to provide students with an elementary knowledge of those institutions and problems of law with which they may reasonably be expected as citizens to have some understanding and appreciation. As a background to this study the meaning of law and its various divisions will be treated with a view to relating the legal order to present day problems of society. Topics will include the organization and functioning of the Federal and Provincial court systems including the appointment and selection of the Judiciary; the various stages in a lawsuit; a brief consideration of the Quebec civil law as it affects questions of marriage and the more common contracts such as sale, lease and partnership. (Full course.)

705 - Political Science 411. Political Parties

Prerequisite : Political Science 211. A study of the history, ideology, organization and electoral geography of political parties in the United States, England, France, Germany, and some of the smaller countries in Western Europe. The course will also deal with the different types of party systems, the nature and function of parties in the democratic process, the nature of political elites, pressure groups, the organization of elections, and political propaganda. Lectures, discussions and term paper. (Full course.)

Textbook : Neumann, *Modern Political Parties*.

705 - Political Science 413. Government of Russia

Prerequisite : Political Science 211 or History 213. A study of the Russian system of government including legislative, executive, and judicial branches; the role of bureaucracy; the Communist Party. Comparisons with Western systems of government. (Half course.)

705 - Political Science 414. Government of United States

Prerequisite : Political Science 211 or History 251 or History 451. A study of the American Constitution, federalism and the electoral system. (Half course.)

705 - Political Science 415. Asian Political Systems

Prerequisite : Political Science 211. A comparative study of the origins and characteristics of the political systems of Asia with particular attention to India, Pakistan, China and Japan. (Full course.)

705 - Political Science 416. Government of France

Prerequisite : Political Science 211 or History 213. A study of the legislative, executive, judicial and party systems of the Fourth and Fifth Republics. Some attention will also be given to French political institutions prior to World War II. (Half course.)

NOTE : — Students who have credit for Political Science 412 may not take this course for credit.

705 - Political Science 417. Government of Germany

Prerequisite : Political Science 211 or History 213. A study of the legislative, executive, judicial and party systems of the German Federal Republic. Some attention will also be given to the political institutions of Eastern Germany and the government of Berlin. (Half course.)

NOTE : — Students who have credit for Political Science 412 may not take this course for credit.

705 - Political Science 421. International Political Relations

Prerequisite : Political Science 211. This course will deal with the following topics : the rise of the Western state-system; nationalism and national sovereignty; imperialism and the balance of power; power politics in war and peace; internationalism and international organizations; international law and international government. Through lectures and class discussions the student will gain some knowledge of the complex pattern of international relations which will serve as a basis for evaluating current events in the modern world in which we live. (Full course.)

705 - Political Science 422. International Organization

Prerequisite : Political Science 211. The historical development of the concepts of international organization with special emphasis upon the 19th and 20th centuries. The League of Nations and the United Nations with its specialized agencies will be examined carefully. In addition, certain other international bodies of a regional or specialized nature such as NATO and GATT will be considered. (Full course.)

NOTE : — Only one full credit will be given from between Political Science 221 and 422.

705 - Political Science 423. Public International Law

Prerequisite : Political Science 211. This course will survey the theory and practice of International Law from its traditional classical origins to the modern contemporary developments with emphasis on the political and interstate relations aspects. The first half of the course will include basic concepts of the nature of law, state sovereignty, treaties, Nationality, jurisdiction, recognition, arbitration, and cases of international adjudication. The second half will develop present trends in international legal order; control of world conflicts, codification of law, settlement of disputes by the International Court of Justice, Human Rights, and the relation of law to power politics. (Full course.)

705 - Political Science 431. History of Political Theory

Prerequisite : Political Science 211 or Philosophy 211. A critical study and analysis of the great thinkers on the problems of politics; Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Hegel, Bentham, Mill and others. This course is designed to give a survey of systematic political reasoning from the classical period up to the middle of the 19th century in an endeavour to show the foundations of modern political thought. (Full course.)

705 - Political Science 432. Modern Political Theories

Prerequisites : Political Science 211 or Philosophy 211; Political Science 431. This course will cover political theories of the 19th and 20th centuries, dealing with such ideologies as Liberalism, Conservatism, Marxism, Democratic Socialism and Fascism. Readings include selections from the writings of Paine, Burke, Green, Marx, Lenin, Bernstein, Mussolini, Hitler, Mao Tse-tung, and others. (Full course.)

705 - Political Science 433. Political Analysis and Methodology

Prerequisites : Political Science 211, and one additional credit in Political Science. A study of the new methods and techniques being used in Political Science today. The course will deal with the possibilities and limitations of the historical, institutional, functional, behavioural and general systems approaches. Attention will also be paid to voting analysis, policy and decision making, group theory, game theory, statistical methods, and such concepts as political culture and politicization. (Full course.)

705 - Political Science 441. Problems of Public Administration

Prerequisite : Political Science 211. This course deals with the nature and function of the administrative branch of government. The student is introduced to such problems as the proper organization of government departments, the management of government corporations, budgeting, selection and training of personnel, maintenance of morale and discipline, relationship between legislature and administration, relationship between the administration and the public. (Full course.)

705 - Political Science 451. Canadian Federalism

Prerequisite : Political Science 251. A critical and analytical study of the theory of federal government and its application to the nature, principles and techniques of federalism in Canada. The reaction of the Canadian federal system to the demands of cultural dualism and regional pressures. Some attention will also be given to the problems of provincial governments in their pressure on and adjustment to Dominion-Provincial relations. (Half course.)

705 - Political Science 491. Honours Seminar

Prerequisite : open to fourth-year Honours students, or by permission of the department. Students will choose a topic from one of the various fields in political science. Each student must prepare and submit an appropriate research paper, under the supervision of the department. (Full course.)

PSYCHOLOGY

G. M. Mahoney, *Professor of Psychology, and Chairman of the Department.*

A. Harold Goldsman, *Associate Professor of Psychology.*
 Jane Stewart, *Associate Professor of Psychology.*
 Joseph P. Zweig, *Associate Professor of Psychology.*
 D. H. Andres, *Assistant Professor of Psychology.*
 Gabriel R. Breton, *Assistant Professor of Psychology.*
 June S. Chaikelson, *Assistant Professor of Psychology.*
 William L. Gardiner, *Assistant Professor of Psychology.*
 Dolores Gold, *Assistant Professor of Psychology.*
 Anthony Hilton, *Assistant Professor of Psychology.*
 William R. Hooper, *Assistant Professor of Psychology.*
 Phyllis Kasper, *Assistant Professor of Psychology.*
 Tannis Y. Maag, *Assistant Professor of Psychology.*
 George R. Marshall, *Assistant Professor of Psychology.*
 Erat S. Nayar, *Assistant Professor of Psychology.*
 Edgar B. Zurif, *Assistant Professor of Psychology.*
 S. R. Munoz, *Lecturer in Psychology.*
 Nancy D. Taylor, *Lecturer in Psychology.*

706 - Psychology 211. Introductory Psychology

The purpose of this course is the development of an adequate understanding of human behaviour and experience. The work includes a study of the sense organs and nervous system, perception, learning, memory, motivation and the basic needs, emotional reactions, personality development, adjustment and integration, abnormal personality, mental abilities and aptitudes, and the application of psychological findings to the problems and activities of everyday life. This course is prerequisite to all other courses in psychology except Psychology 241. (Full course.)

706 - Psychology 225. Psychology and Crime

Prerequisite : Psychology 211. A specialized course in the application of psychology to problems of legal procedure, crime and punishment. The course includes the study of the psychology of the judge, the jury, the witness, the police and the criminal. Discussion of the social and psychological factors contributing to crime and delinquency, and consideration of the various penal methods also is included. (Half course.)

706 - Psychology 241. Statistical Methods for Psychology and Education

Prerequisite : Mathematics 213 or 251 or high-school Algebra. A basic course in the fundamentals of statistics for psychology and education. Topics include : the construction of frequency distributions; graphic presentation; measures of central tendency and dispersion; correlation and linear regression; elementary probability theory; the binomial distribution and the normal curve; sampling or the reliability of statistics and tests of significance; Chi square; analysis of variance; miscellaneous non-parametric techniques. Lectures and laboratory. (Full course.)

NOTE : — Only one full credit will be given from among Economics 481, Mathematics 241, Quantitative Methods 242, Statistics 242, Social Science 241, Sociology 241, and Psychology 241.

706 - Psychology 271. Experimental Psychology IA

Prerequisite : Psychology 211. An examination of experimental method in psychology with an introduction to statistical techniques (primarily descriptive statistics) and laboratory experience in methodology appropriate to all areas of psychology. Lectures and laboratory. (Full course.)

NOTE : — Students who have credit for Psychology 273 may not take this course for credit.

706 - Psychology 273. Experimental Psychology IB

Prerequisites : Psychology 211; 241 previously or concurrently. An examination of experimental method in psychology, with laboratory experience in techniques appropriate to important problem areas. Lectures and laboratory. (Full course.)

NOTE : — This course is intended primarily for students Honouring and majoring in Psychology. Others should take Psychology 271.

Students who have credit for Psychology 271 may not take this course for credit.

706 - Psychology 412. Modern Psychology in Historical Perspective

Prerequisite : Psychology 211. This course consists of an outline of the history of psychology from early times up to the recent past. The work includes the ancient and medieval background of psychology; the early con-

tributions from the fields of physics and physiology; psychophysics; and historical background of the various schools of psychological thought from the late nineteenth century to the present day. (Full course.)

706 - Psychology 413. Contemporary Problems in Psychology

Prerequisite : Open to fourth-year Honours students, or by permission of the department. An intensive treatment of current major problem areas in psychology. (Full course.)

706 - Psychology 421. Learning

Prerequisites : Psychology 211, 241. A study of empirical findings and theoretical issues in the fields of animal and human learning. Topics covered include conditioning, discrimination learning, transfer, verbal learning, forgetting, and classic and contemporary theoretical issues. (Full course.)

NOTE : — Beginning in 1969-70, the prerequisites for this course will be Psychology 211, 241; 271 or 273.

706 - Psychology 422. Motivation

Prerequisite : Psychology 211. A study of empirical findings and theoretical issues in the fields of animal and human motivation. Topics covered include physiological bases of motivation, instinct, drive, frustration and conflict, emotions, exploratory behaviour, and classic and contemporary theoretical issues. (Full course.)

NOTE : — Beginning in 1969-70, the prerequisites for this course will be Psychology 211; 271 or 273.

706 - Psychology 427. Appraisal of Tests and Measurements

Prerequisites : Psychology 211, 241. A course in the construction and appraisal of tests and other measurements and procedures, as used in the study of individuals and groups for such purposes as vocational guidance, social psychological research into attitudes, prejudices, and the like, and in the conduct of other types of psychological research. Lectures, demonstrations and seminar periods. (Full course.)

706 - Psychology 431. Perception

Prerequisite : Psychology 211. Theoretical approaches to the study of perception will be discussed. The effects of learning, motivation, and social factors upon perceptual processing will be examined. (Full course.)

NOTE : — Students who have credit for Psychology 432 may not take this course for credit.

706 - Psychology 432. Perception

Prerequisites : Psychology 211, 271 or 273. The physiological bases of sensation and perception and their relation to the basic psychological phenomena encountered in vision, audition, and the other senses will be studied. Phenomena such as pattern perception and the perception of distance and movement will be analysed. The effects of learning, motivation, and social factors upon perceptual processing will also be examined. (Full course.)

NOTE : — This course is intended primarily for students Honouring or majoring in Psychology. Others should take Psychology 431.

Students who have credit for Psychology 431 may not take this course for credit.

Not offered in 1968-69.

706 - Psychology 433. Cognition

Prerequisite : Psychology 211. A course in the psychological nature of thinking and other cognitive processes, which will be studied in relation to perception, learning, and development as approached by Piaget and other developmental theorists. (Full course.)

NOTE : — Students who have credit for Psychology 434 may not take this course for credit.

706 - Psychology 434. Cognitive Processes

Prerequisites : Psychology 211; 271 or 273. An investigation of the complex processes intervening between the stimulus and the response. Various attempts to explain them in terms of the stimulus by perception theorists and in terms of the response by learning theorists, will be examined. Other logical approaches will be discussed and exemplified, e.g. the developmental approach by the work of Piaget, and the psychometric approach by the work of Guilford. (Full course.)

NOTE : — This course is intended primarily for students Honouring and majoring in Psychology. Others should take Psychology 433.

Students who have credit for Psychology 433 may not take this course for credit.

Not offered in 1968-69.

706 - Psychology 437. Child Development

Prerequisite : Psychology 211. A survey of the physical, cognitive and social development of the child from birth to adolescence. The course will discuss both selected theories of child development and the theoretical and practical implications of empirical data. (Full course.)

NOTE : — Students who have credit for Psychology 231 or 438 may not take this course for credit.

706 - Psychology 438. Developmental Psychology

Prerequisites : Psychology 211; 271 or 273. An experimental and comparative approach to human development from conception to old age, with emphasis on the period from birth to adolescence. Topics discussed will include language, social behaviour, intelligence, learning and perception. (Full course.)

NOTE : — This course is intended primarily for students Honouring and majoring in Psychology. Others should take Psychology 437.

Students who have credit for Psychology 231 or 437 may not take this course for credit.

Not offered in 1968-69.

706 - Psychology 441. Social Psychology

Prerequisite : Psychology 211. A study of the organism in its socio-psychological environment with special emphasis on theory and research in the areas of attitudes, group behaviour, and socialization. (Full course.)

NOTE : — Students who have credit for Psychology 442 may not take this course for credit.

706 - Psychology 442. Psychology of the Individual in Social Settings

Prerequisites : Psychology 211; 271 or 273. A study of social factors in the behaviour and attitudes of the individual and of groups, including a survey of the psychology of bias, prejudice, stereotypes, propaganda, opinion, individual and group morale, group dynamics and sociometry. (Full course.)

NOTE : — This course is intended primarily for students Honouring and majoring in Psychology. Others should take Psychology 441.

Students who have credit for Psychology 441 may not take this course for credit.

Not offered in 1968-69.

706 - Psychology 451. Personality

Prerequisite : Psychology 211. The course deals with the nature of personality, its determinants, culture and personality, temperament and character, self and its development, theories of personality, anxiety, conflicts, dreams, personality deviations and measurement of personality. (Full course.)

NOTE : — Students who have credit for Psychology 452 may not take this course for credit.

706 - Psychology 452. Personality

Prerequisites : Psychology 211; 271 or 273. The course surveys the various theories of personality and relationships between personality and behaviour. Individual differences in personality will be studied along with related factors such as age, sex, education, genetic and other physical factors, socio-economic level and other cultural factors. A brief survey and review of basic statistical concepts will be included along with a short introduction to personality measurement. (Full course.)

NOTE : — This course is intended primarily for students Honouring and majoring in Psychology. Others should take Psychology 451.

Students who have credit for Psychology 451 may not take this course for credit.

Not offered in 1968-69.

706 - Psychology 453. Abnormal Psychology

Prerequisites : Psychology 211, 451. A study of the etiology and description of behaviour and psychological disorders, including the psychoneuroses, psychoses and psychosomatic conditions. (Full course.)

NOTE : — Beginning in 1969-70, the prerequisites for this course will be Psychology 211; 271 or 273; 451 or 452.

Not offered in 1968-69.

706 - Psychology 461. Physiological Psychology

Prerequisites : Psychology 211; Botany 211 and Zoology 222 previously or concurrently. This course attempts to relate neurophysiology to such psychological problems as learning, attention, and emotion. The topics treated include excitation and conduction in the neuron; synaptic mechanism; sensory and motor systems; the internal environment; the electrical activity of the brain. Emphasis is given to brain damage studies in animals and man, and the problem of localization of function in the nervous system. (Full course.)

NOTE : — Beginning in 1969-70, the prerequisites for this course will be Psychology 211; 271 or 273; Botany 211 and Zoology 222 previously or concurrently.

706 - Psychology 462. Comparative Psychology

Prerequisites : Psychology 211, 461 (unless exemption is granted by the instructor.) The comparative method in the study of psychological problems, the evolution of behavior and its mechanism from protozoa to man, discussion of tropisms, reflexes, instincts, needs, sensory capacities, learning, thinking, and feeling. (Half course.)

NOTE : — Beginning in 1970-71, the prerequisites for this course will be Psychology 211; 271 or 273; 421 or 422 or 438.

706 - Psychology 471. Experimental Psychology II

Prerequisites : Psychology 241 and permission of the department. This course will deal with experimental procedures and related techniques in the study of perception, learning, motivation and thinking. Emphasis will be placed on critical analysis of experiments and the evaluation of theoretical ideas in the light of their results. Students will be required to prepare reports of the literature on specific topics, and to arrange and conduct demonstration experiments. Lectures and laboratory. (Full course.)

NOTE : — Beginning in 1969-70, the prerequisites for this course will be Psychology 211, 241; 271 or 273; and permission of the department.

706 - Psychology 472. Advanced Experimental Problems

Prerequisite : open to fourth-year Honours students, or by permission of the department. Supervised investigation of special problems. Each student will be required to conduct an experimental study and to submit an appropriate research paper of the study, under the supervision of the department. Lectures and laboratory. (Full course.)

706 - Psychology 481. Psychology of Work Organizations

Prerequisites : Psychology 211; Psychology 441 or Sociology 211. The scientific study of human behaviour as it occurs in business and industry; an examination of the roles of workers, managers, and consumers, and studies of the social psychology of organizations. (Full course.)

NOTE : — Students who have credit for Psychology 221 may not take this course for credit.

Beginning in 1969-70, the prerequisites for this course will be Psychology 211; 271 or 273; Psychology 441 or 442 or Sociology 211.

706 - Psychology 482. Psychology of Human Learning in the Classroom

Prerequisites : Psychology 211, 231. A systematic examination of psychological principles and research reports which contribute to an understanding of human learning in the school. (Full course.)

NOTE : — Students who have credit for Psychology 223 may not take this course for credit.

Beginning in 1969-70, the prerequisites for this course will be Psychology 211; 271 or 273; 231 or 437 or 438.

SOCIOLOGY AND ANTHROPOLOGY

Hubert Guindon, *Associate Professor of Sociology, and Chairman of the Department.*

Harold H. Potter, *Professor of Sociology.*
 Fernand Fontaine, *Associate Professor of Sociology.*
 Kurt Jonassohn, *Associate Professor of Sociology.*
 Anatole N. Klein, *Associate Professor of Anthropology.*
 Leo F. Van Hoey, *Associate Professor of Sociology.*
 H. Taylor Buckner, *Assistant Professor of Sociology.*
 John D. Jackson, *Assistant Professor of Sociology.*
 Joseph C. Mouldous, *Assistant Professor of Sociology.*
 Solomon J. Rawin, *Assistant Professor of Sociology.*
 Karl W. Kreplin, *Lecturer in Sociology.*
 David K. Orton, *Lecturer in Sociology.*
 Patricia Pajonas, *Lecturer in Sociology.*
 Shirley I. Ciffin, *Sessional Lecturer in Sociology.*
 Scott A. Greer, *Visiting Professor of Sociology.*

SOCIOLOGY

707 - Sociology 211. Introduction to Sociology

Folkways, mores, role, status, institution, culture are the chief concepts discussed. Personality formation, personal disorganization and social change also are dealt with, as are theory, past and current research and historical background. (Full course.)

707 - Sociology 222. Crime

Theories about criminal behaviour; comparative studies; white collar crimes; relationship between social organization, culture and crime. (Half course.)

707 - Sociology 241. Statistical Methods for Sociology

Prerequisite: high-school Algebra. An introductory course in descriptive and analytical statistical methods for students of sociology. Lectures and laboratory. (Full course.)

NOTE: — Only one full credit will be given from among Economics 481, Mathematics 241, Quantitative Methods 242, Statistics 242, Social Science 241, Psychology 241, and Sociology 241.

707 - Sociology 411. Techniques in Sociology

Prerequisites: Sociology 211, 241. This course deals with the design of research, the methods of data collection, and the techniques of analysis. A research project will be designed and carried out by the students. The emphasis will be on training for the critical reading of published research materials, as well as on training for graduate study. Lectures and laboratory. (Full course.)

707 - Sociology 421. Social Change

Prerequisites: Sociology 211; 422 or 423 or 424 or 428. A study of the implications of the passing of traditional society and the development of large-scale organization. Particular foci of interest are the shifting distributions of population, material resources, and social power in connection with the development of expanding and diversifying institutional frameworks.

Colonization, nationalism, modernization, industrialization, and urbanization are examined in organizational perspective as group-making processes. (Full course.)

NOTE: — Students who have credit for Sociology 221 may not take this course for credit.

707 - Sociology 422. Collective Behaviour and Social Movements

Prerequisite: Sociology 211. Characteristics of collective behaviour; its origin, development, and relationship to formal social structures. Methods of study and theories to explain the observed processes. The nature and function of social movements; their life histories and their relationship to the larger society. Specific case studies of religious, racial, and political movements. (Full course.)

707 - Sociology 423. Classical Sociological Theory

Prerequisites: Sociology 211, and one additional credit in Sociology. Introduction to major theorists whose main works will be read and discussed. Emphasis will be on the classics up to about 1920, especially Comte, Spencer, Marx, Ward, Sumner, Mead, M. Weber, Simmel, Durkheim and Pareto. Lectures and seminar. (Full course.)

707 - Sociology 424. Contemporary Sociological Theory

Prerequisites: Sociology 211, and one additional credit in Sociology. The nature and principles of theoretical construction. Analysis of specific theories. Classical theories such as those of Durkheim, Simmel and M. Weber are included, but the emphasis is on contemporary theorists, especially Parsons, Merton, Homans, Coser and Goffman. Lectures and seminar. (Full course.)

707 - Sociology 425. Self and Society

Prerequisite: Sociology 211. Theories of symbolic interaction that have influenced sociological analysis, with special emphasis on the theories of John Dewey, G. H. Mead, Cooley, Burke, Royce, Gerth and Mills, and Blumer. Motivation is viewed in terms of the interplay between actors and social structures, and this approach is illustrated by reference to selected empirical studies. (Full course.)

707 - Sociology 427. Political Sociology

Prerequisite: Sociology 211. The social and normative structures of political institutions, including political parties; the relationship between political institutions and religious and economic institutions; the rise and fall of political ideologies, systems and institutions; the making and communication of policies; the rejuvenation of elites. Political attitudes and behaviour are analysed, as well as political socialization, interest and involvement. (Full course.)

707 - Sociology 428. Social Organization

Prerequisite: Sociology 211. A study of different methods of coordinating human action in social group operations under different environmental conditions. Particular focus is on role systems connected with multi-group structures. The course begins with the analysis of roles and groups, examines the process of group formation and ends with a comparative study of diverse and altering structures in major institutional areas of organization. (Full course.)

707 - Sociology 431. Medical Sociology

Prerequisite : Sociology 211. The social and cultural matrix of illness and health; some psycho-social processes in illness; the role of the patient and the role of the physician in modern society; the therapeutic relationship, and the function and structure of the modern hospital. (Full course.)

707 - Sociology 432. Religious Institutions

Prerequisite : Sociology 211. Religion is viewed as an institutionalized expression of the culture. The interpretation of the religious phenomenon is sociological and not historical, philosophical, or theological. The focus is contemporary for the most part, and mainly on the American and Western scene. (Full course.)

707 - Sociology 433. Sociology of Deviance

Prerequisite : Sociology 211. The nature of deviant or marginal behaviour : legal and non-legal forms. Socialization to deviance; institutionalization of deviance; social control of deviance; structure and culture of deviance. Theories of deviant behaviour and their sociological, legal and practical implications. (Full course.)

707 - Sociology 434. Sociology of Art and Leisure

Prerequisite : Sociology 211. Leisure in modern urban society. Occupations and institutions and their growth due to increasing available time and expanding demand. The role of leisure in the life cycle, in the economy, in politics, religion, and kinship. The function of fine art and popular art in relation to increasing literacy, prosperity, and technology. (Full course.)

707 - Sociology 435. Communication and Public Opinion

Prerequisite : Sociology 211. Study of mass media and their role in social control, social change, political phenomena, culture and social structure. Factors of their emergence and structure, including feedback and communication technology. Relationship between public opinion, communication and mass media, social action, and social change. Comparisons between industrialized and non-industrialized societies. (Full course.)

707 - Sociology 436. Sociology of Violence

Prerequisites : Sociology 211; 422 or 423 or 424 or 428. While interpersonal violence is dealt with in Sociology 433, this course will deal with inter- and intra-system violence. The nature of the military establishment, international conflict and war, insurrection and revolution. Special attention will be given to the relationship between theoretical frameworks and observed cases. (Full course.)

707 - Sociology 441. The Modern Community

Prerequisite : Sociology 211. The physical and social characteristics of urban communities are studied with special attention paid to ecological patterns and ecological processes. Forms of adjustment, co-operation and control are included in these studies. (Half course.)

707 - Sociology 442. The Family

Types of mate selection and types of marriage. Theories about the history of the human family. Models of family structure and family interaction. Empirical studies. Illegitimacy, family planning, old age, divorce, and psychodrama are treated. Designed to guide students who may go on to graduate study, as well as students whose main objective is preparation for marriage. (Full course.)

707 - Sociology 443. Intergroup Relations in Canada

Prerequisite : Sociology 211. Concepts of race, ethnicity, racial prejudice are examined. Intergroup problems; the marginal man; the selective nature of migration. (Half course.)

707 - Sociology 444. Social Stratification

Prerequisite : Sociology 211. Systems of social differentiation are analyzed. Theories about their origins and consequences, and about degrees and types of mobility related to them, are discussed. The theories are applied to Canada and to the United States as well as to other societies. (Full course.)

707 - Sociology 447. Intergroup Relations

Prerequisite : Sociology 211. A study of the manner in which racial and ethnic groups are redefined by being renamed in the course of history; an analysis of the social, economic, and political relations between groups; analysis of consensus, interdependence, alienation, and conflict; emphasis is historical and comparative. (Full course.)

707 - Sociology 448. Sociology of Education

Prerequisite : Sociology 211. The social organization of educational activities. The role of educational institutions in socialization, social control and technology. Education and stratification, mobility and social change. (Full course.)

707 - Sociology 449. Sociology of Law

Prerequisites : Sociology 211; 422 or 423 or 424 or 428. A study of law as an institutionalized system of social control in diverse and changing structures of society. Examined are the problems of definition and validation, enforcement and execution of the law in various spheres of application in connection with different systems of stratified organization. Special attention is given to legal organization in contemporary society. (Full course.)

707 - Sociology 461. Demography

Prerequisite : Sociology 211 or Economics 211 or Geography 211 or 441. This course consists of a brief survey of population theory and an introduction to the techniques of population analysis. It will cover the size, distribution, and composition of the population; changes in these characteristics; the relationship between population trends and social and economic conditions, with special reference to recent trends. (Half course.)

707 - Sociology 462. Area Studies in Demography

Prerequisite : Sociology 461. Demographic trends of Canada and the United States; interregional migration; demographic features of other areas for which data is available. Special emphasis on the relationship between economic development and demographic characteristics will be given where possible. (Half course.)

707 - Sociology 464. Area Studies in Social Change

Prerequisites : Sociology 211; 421 or 422 or 423 or 424 or 428. Intensive study of the subject matter of Sociology 421 in one specific area. (Half course.)

707 - Sociology 465. Industrial Sociology

Prerequisite: Sociology 211 or Psychology 441. This course presents a sociological approach to the study of work in modern industrialized society. It deals with occupations and professions, some characteristics of the labour force and the labour market, and an analysis of social interaction and its effects in occupational groups and work groups. (Full course.)

NOTE: — Students who have credit for Sociology 243 may not take this course for credit.

707 - Sociology 491. Honours Seminar

Prerequisite: open to fourth-year Honours students or by permission of the department. Students engage in a critical study of major sociological work, according to their interests. Before the end of the academic year a research paper must be completed and accepted by the department. (Full course.)

707 - Sociology 492. Special Seminar

Prerequisites: Sociology 211, 422, 424. Subject matter will vary from year to year to take advantage of the special interests of the seminar leader. This course will provide opportunities to senior students for discussion and advanced study. (Full course.)

707 - History-Sociology 493. History and Sociology

Prerequisites: an introductory course in History and in Sociology, and third or fourth-year standing. An exploration of the relationships between historical and sociological approaches to the description and analysis of social conditions and social events, paying special attention to questions of methodology and conceptualization. (Full course.)

NOTE: — This course may be counted as a credit in either History or Sociology.

707 - Sociology 494. Logic of Sociological Analysis

Prerequisites: Sociology 211; 411 or 423 or 424. This course is intended for fourth-year or Honours students. The basic structure of science is discussed and matched against the underlying methodological positions found in the works of some of the major sociologists. This seminar complements Sociology 411, 423, or 424. (Full course.)

707 - Sociology 495. Sociology of Knowledge

Prerequisite: open to Honours and major students, or by permission of the department. Studies of the effect of myths, ideologies, and utopias on social structure, and of the social structure as the determinant of conceptions and problem definitions under particular historical conditions; the contributions of thinkers such as Plato, Ibn Khaldoun, M. Scheler, M. Weber, K. Marx, K. Mannheim, and R. Merton. (Full course.)

707 - Sociology 496. Seminar in Urban and Metropolitan Studies

Prerequisites: Sociology 211, 441. Intensive study of a few theories and selected monographs dealing with aspects of urbanization. (Full course.)

707 - Sociology 497. Comparative Social Systems

Prerequisites: Sociology 211; 421 or 422 or 423 or 424 or 428. Techniques of comparative analysis. Examination of research in the areas of development, modernization, and social change. Relationship between societies at different levels of development. Special attention is given to the testing of various theories for their explanatory value in actual research. (Full course.)

ANTHROPOLOGY**709 - Anthropology 211. Introduction to Anthropology**

This course deals with the evolution of man and his culture during pre-history, the differentiation of races, family and kinship structures in simple and complex societies, and the religious beliefs and practices of ancient and modern primitives in selected parts of the world. (Full course.)

NOTE: — Only one full credit will be given students who pass Anthropology 211 and Sociology 231.

709 - Anthropology 411. The American Indian

Prerequisite: Anthropology 211 or Sociology 231. The principles of general anthropology applied in a survey course on the American Indians. The advent of man to America; early cultural developments and the differentiation of the various groups or tribes; the culture of the Mayas, Toltecs, Aztecs, Pueblos, Iroquois, Eskimos, Northwest coast tribes, Andean, and other early civilizations of North and South America; the cultural contributions of the Indian to Western civilization. (Full course.)

NOTE: — Students who have credit for Sociology 232 may not take this course for credit.

709 - Anthropology 421. African Peoples

Prerequisite: Anthropology 211 or Sociology 231. This course deals with family and kinship structures of selected regions; native political organizations, political organization during colonial periods; religious beliefs and practices. (Full course.)

709 - Anthropology 431. Culture and Personality

Prerequisite: Anthropology 211 or Sociology 231. Theories of the relationship between human nature and culture; variations in different cultural settings; comparisons between primitive and modern societies; the influence of social role on behaviour. (Full course.)

709 - Anthropology 432. Cultural Anthropology

Prerequisite: Anthropology 211 or Sociology 231. Major theories of culture; survey of principal culture types and their distribution; analysis of relations between various aspects of culture such as technology, economy, family, and religion, with special attention to nonindustrial societies; discussion of ethnological problems. (Full course.)

VII

Faculty of Science

Department of Physics

The Department of Physics is one of the oldest departments in the Faculty of Science. It was established in 1920. The department offers a Bachelor of Science degree in Physics. The department has a strong research program in various areas of physics, including condensed matter physics, quantum mechanics, and astrophysics. The department also offers a Master of Science degree in Physics.

Department of Chemistry

The Department of Chemistry is one of the oldest departments in the Faculty of Science. It was established in 1920. The department offers a Bachelor of Science degree in Chemistry. The department has a strong research program in various areas of chemistry, including organic chemistry, inorganic chemistry, and physical chemistry. The department also offers a Master of Science degree in Chemistry.

Department of Mathematics

The Department of Mathematics is one of the oldest departments in the Faculty of Science. It was established in 1920. The department offers a Bachelor of Science degree in Mathematics. The department has a strong research program in various areas of mathematics, including algebra, geometry, and topology. The department also offers a Master of Science degree in Mathematics.

CURRICULUM FOR THE DEGREE OF BACHELOR OF SCIENCE

ADMISSION REQUIREMENTS: Requirements for admission to undergraduate standing in the Faculty of Science are found in Section IV.

Students preparing for the degree of Bachelor of Science will take 21 course credits as listed below. A full credit represents three hours of class work per week for a full academic year, with the required additional laboratory work. A three-hour course followed for one term only is therefore a half-course and represents a half credit.

First Year Science (5 credits)

I. TWO credits selected from :	Physics 211 Chemistry 211 Botany 211 and Zoology 222 Geology 211
II. ONE credit :	Mathematics 213*
III. ONE credit :	Mathematics 223*
IV. ONE credit :	English 211**

Second Year Science (6 credits)

I. ONE credit selected from :	English or French Literature
II. TWO credits selected from :	Humanities, Social Sciences, Computer Science 211/212***
III. THREE credits selected from :	Faculty of Science

* Students who have completed high-school Trigonometry and Intermediate Algebra with a grade of 65% or more may substitute Mathematics 233 and 451. Those who have credit for some, but not all of Mathematics 211, 221, and 231 should consult a member of the Mathematics Department on courses necessary to complete first-year Mathematics requirements.

** A student whose native language is not English should consult the statement on English requirements for non-English-speaking students in Section IV.

*** If Computer Science 211/212 is taken in second year, a further course in the Humanities or Social Sciences must be taken in third year.

Third and Fourth Year Science (5 and 5 credits)

Students must take ten further credits through the two years, with a maximum of six credits in any one year. At least six of these ten credits must be selected from the Faculty of Science.

At least seven of the total of twenty-one credits required for the degree must be selected from courses at the "B" level (courses numbered in the 400's in the Announcement).

To be admitted to the third year, the student must have completed (or if an evening student, be in the process of completing) the requirements for the first and second years.

MAJOR PROGRAMMES

A "major" is an approved sequence of at least six credits in a specific field, which may include certain approved courses in other closely related subjects. The term "major" as used by Sir George Williams University implies that the student has followed, within the requirements for the degree, a planned programme in a specialized field.

Any student wishing to major must consult the chairman of the department concerned before planning a course sequence, and present to the Registrar a statement signed by the appropriate chairman authorizing him to register for studies in the major field. It is recommended that such consultation take place during a student's second year, or before commencing the third year.

REQUIREMENTS FOR MAJORS

Biochemistry

The following courses, in an approved sequence, constitute a major in Biochemistry :

First year :	First-year Science with Chemistry 211 and Physics 211.
Second year :	Chemistry 221 or 421, 231; Botany 211*, Zoology 222*; Mathematics 451.
Third year :	Chemistry 441, Zoology 431.
Fourth year :	Chemistry 442, Chemistry 443.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Chemistry department.

* Half-course.

Botany

The following courses, in an approved sequence, constitute a major in Botany :

First year : First-year Science with Botany 211*, Zoology 222*, and Chemistry 211.

Second year : Botany 411 or 414 or 415, Chemistry 221, Physics 211, English or French Literature, and two credits in Humanities or Social Science.

Third and
Fourth year : Biology 442, Botany 413, one 400-level Zoology course, and three credits from the Biology department selected in consultation with a member of the department. The remaining four courses may be selected by the student.

Chemistry

The following courses, in an approved sequence, constitute a major in Chemistry :

First year : First-year Science with Chemistry 211 and Physics 211.

Second year : Chemistry 231, 411*, 412*, 421; Mathematics 451.

Third and
Fourth year : Chemistry 415, 417*, 427*, 432, 490 and one full credit in Chemistry.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the Chemistry department.

Mathematics

The following courses, in an approved sequence, constitute a major in Mathematics :

Mathematics 450 or 451, 431, 411, 440 or 441; three and one-half additional 400-level credits in Mathematics, excluding Mathematics 442 and 446.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

* *Half-course.*

Mathematics (Statistics Option)

The following courses, in an approved sequence, constitute a major in Mathematics (Statistics Option) :

Mathematics 450 or 451, 431, 411, 441, 442, 472*.

One of Mathematics 452, 457, 459.

One of Mathematics 444, 446.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Physics

The following courses, in an approved sequence, constitute a major in Physics :

Mathematics 213 and 223 (or 233 by those qualified), 431, 451, 452, 457.

Physics 211, 222*, 232*, 440*, 441, 442*, 452, 453, 461, 491.

No student will be accepted for the major until a plan of study over the several undergraduate years has been approved by the chairman of the department.

Zoology

The following courses, in an approved sequence, constitute a major in Zoology :

First year : First-year Science with Botany 211*, Zoology 222*, and Chemistry 211.

Second year : Zoology 422, Chemistry 221, Physics 211, English or French Literature, and two credits in Humanities or Social Science.

Third and
Fourth year : Biology 442, Zoology 431, one 400-level Botany course and three credits from the Biology department selected in consultation with a member of the department. The remaining four courses may be selected by the student.

* *Half-course.*

REQUIREMENTS FOR HONOURS

The Science Departments offer Honours programmes wherein the student may concentrate on certain fields of study while maintaining a high level of academic performance. The regulations governing qualifications for an Honours degree are given in Section VI.

Botany

The following courses constitute an Honours programme in Botany, provided the student maintains the required academic standing :

First year : Botany 211*, Zoology 222*, Chemistry 211.

Second year : Botany 411 or 414 or 415; Physics 211, Chemistry 221, and one of Mathematics 451 or German 215 or Russian 215.

Third and Fourth year : Botany 413, Biology 442, 491, one 400-level Zoology course, and two additional courses from the Biology department. The remaining four courses should be selected in consultation with a member of the department.

Chemistry

The following courses constitute an Honours programme in Chemistry, provided the student maintains the required academic standing :

First year : First-year Science with Chemistry 211 and Physics 211.

Second year : Chemistry 231, 411*, 412*, 421; Mathematics 451. In addition, German 215 or Russian 215.

Third year : Chemistry 415, 417*, 427*, 432, 490; Mathematics 452. (A student Honouring in Chemistry may take Mathematics 452 without Mathematics 431 as prerequisite).

Fourth year : Chemistry 416, 423*, 426*, 433, 450, 491.

* Half-course.

Mathematics

The following courses constitute an Honours programme in Mathematics, provided the student maintains the required academic standing :

Pattern A (for students entering without Intermediate Algebra and Trigonometry, or entering second year).

First year : Mathematics 213, 223.

Second year : Mathematics 411, 431, 451. (Properly qualified students entering second year will replace Mathematics 451 by 450).

Third year : Mathematics 441, 452, 458, 459.

Fourth year : Mathematics 461, 462, 463.

Third or

Fourth years : Mathematics 472*, 481*.

Pattern B (for students entering with Intermediate Algebra and Trigonometry.)

First year : Mathematics 233, 451.

Second year : Mathematics 411, 431, 452.

Third year : Mathematics 441, 458, 459.

Fourth year : Mathematics 461, 462, 463.

Third or

Fourth years : Mathematics 472*, 481*.

Mathematics (Statistics Option)

The following courses constitute an Honours programme in Mathematics (Statistics Option), provided the student maintains the required academic standing :

Pattern A (for students entering without Intermediate Algebra and Trigonometry, or entering second year).

First year : Mathematics 213, 223.

Second year : Mathematics 411, 431, 451. (Properly qualified students entering second year will replace Mathematics 451 by 450).

Third year : Mathematics 441, 452, 458, 459, 472*.

Fourth year : Mathematics 442, 448. Two credits chosen from Mathematics 444, 446, 461, 462.

* Half-course.

Pattern B (for students entering with Intermediate Algebra and Trigonometry).

First year : Mathematics 233, 451.

Second year : Mathematics 411, 431, 452.

Third year : Mathematics 441, 458, 459, 472*.

Fourth year : Mathematics 442, 448. Two credits chosen from Mathematics 444, 446, 461, 462.

Note : (a) Students intending to go on to graduate work in Statistics should elect Mathematics 461 and 462 in fourth year.
 (b) Students intending to go on to graduate work in Operations Research should elect Mathematics 444 and 462 in fourth year.
 (c) Students desiring a more applied programme should elect Mathematics 444 and 446 in fourth year.

Physics

The following courses constitute an Honours programme in Physics provided the student maintains the required academic standing :

Pattern A (for students entering without Intermediate Algebra and Trigonometry)

First year : Mathematics 213, 223; Chemistry 211 and in addition Physics 211 for students entering without high-school Physics.

Second year : Mathematics 431, 451; Physics 222*, 232*, 440*, 442*, 452.

Third year : Mathematics 452, 457; Physics 441, 453, 461.

Fourth year : Mathematics 459; Physics 451, 471, 472, 491.

Pattern B (for students entering with Intermediate Algebra, Trigonometry and Physics).

First year : Mathematics 233, 451; Physics 222*, 232*; Chemistry 211.

Second year : Mathematics 431, 452; Physics 440*, 442*, 452.

* Half-course.

Third year : Mathematics 457, 459; Physics 441, 453, 461.

Fourth year : Physics 451, 471, 472, 491.

It is strongly recommended that Honours students in Physics planning to do graduate work acquire a good reading knowledge of German or Russian.

Zoology

The following courses constitute an Honours programme in Zoology, provided the student maintains the required academic standing :

First year : Botany 211*, Zoology 222*, Chemistry 211.

Second year : Zoology 422, Physics 211, Chemistry 221; one of Mathematics 451 or German 215 or Russian 215.

Third and Fourth year : Zoology 431, Biology 442, 491, one 400-level Botany course, and two additional full courses from the Biology department. The remaining four courses should be selected in consultation with a member of the department.

FACULTY OF SCIENCE

Samuel Madras, *Dean*.
 John Ufford, *Assistant Dean*

NOTE : — Courses which are no longer offered and those whose titles and course numbers have been changed are listed in Section XVIII.

NATURAL SCIENCE

Gordon Cadenhead, *Assistant Professor of Natural Science*.
 Edward Russell Paterson, *Assistant Professor of Natural Science*.

500 - Natural Science 210. General Course in the Natural Sciences

This course provides a broad, unified and non-technical approach to the natural sciences. Science is presented as a philosophical approach to knowledge, and its relations to the arts, humanities, and society are discussed. A survey of fundamental concepts and principles rather than a detailed description of the separate sciences is emphasized. The subject matter includes man's place in the universe, the present understanding of matter and energy, evolution of the earth, biological life and man, the broad applied areas of science e.g. resources, communications, space, defence and habitation. A strongly visual teaching approach is used. (Full course.)

* Half-course.

500 - Natural Science 231. Descriptive Astronomy

The course deals in a descriptive way with the various celestial bodies and their relationships. Starting with the solar system and continuing into stellar and galactic astronomy, it offers the student the modern concept of the stellar universe as a whole. While it avoids mathematical treatment as much as possible, a background of some high school physics and mathematics is of advantage. Lectures are copiously illustrated with slides. The course is intended as a preparation for an intelligent amateur interest in this rapidly expanding science. (Full course.)

500 - Natural Science 241. History of Science

This course deals with the origins of science and its development from primitive times to the 19th century. It explains the greatly differing attitudes of the past towards science by relating them to the characteristics of successive historical periods. Throughout the course science is treated as a unity, not subdivided into compartments. It is intended for students who have some background in one or more scientific fields, with the aim of clarifying their views of the significance of their particular interests in the broader conception of science as a whole. (Half course.)

BIOLOGY**C. F. MacLeod, Associate Professor of Biology and Chairman of the Department.**

Donald L. Peets, *Professor of Human Genetics.*
 F. S. Abbott, *Assistant Professor of Biology.*
 Perry D. Anderson, *Assistant Professor of Biology.*
 S. S. Ashtakala, *Assistant Professor of Biology.*
 R. K. Ibrahim, *Assistant Professor of Biology.*
 Austina V. Kennedy, *Assistant Professor of Biology.*
 Gerard Leduc, *Assistant Professor of Biology.*
 Ruth L. Lowther, *Assistant Professor of Biology.*
 Daniel F. Waltz, *Assistant Professor of Biology.*
 P. K. Menon, *Visiting Professor of Biology.*

BIOLOGY**501 - Biology 241. Genetics and Human Welfare**

A course on the principles of heredity as understood by modern biology. It deals also with the application of genetic principles to organisms including man. The biological basis of social problems is dealt with at some length. The doctrine of organic evolution and its implications for human life and welfare are considered. Lectures only. (Full course.)

501 - Biology 271. Histological Technique

Prerequisite : permission of the instructor. A course in methods of preparing plant and animal tissues for microscopic study. Practical experience is acquired in fixing, embedding, cutting and staining. Lectures and laboratory. (Full course.)

501 - Biology 442. Genetics

Prerequisites : Botany 211, Zoology 222, 3rd or 4th-year standing. A course to illustrate the fundamental principles of inheritance in plants and animals. Lectures and laboratory. (Full course.)

NOTE : — No credit will be given for Biology 241 if taken concurrently with or following Biology 442.

501 - Biology 443. Cytology

Prerequisites : Botany 211, Zoology 222. Biology 442, Chemistry 221. An introduction to cell structure of both plants and animals, with special reference to genetics. Lectures and laboratory. (Half course.)

501 - Biology 452. Limnology

Prerequisites : Zoology 421 or Botany 415 and 4th-year standing. Physical, chemical, and biological factors of lakes and streams in relation to productivity. Lectures and laboratory. (Full course.)

501 - Biology 481. History of Biology

Prerequisite : Botany 211, Zoology 222 and any other two courses from the Biology department. A course following the growth of biological science. Lectures only. (Full course.)

501 - Biology 491. Special Study

Prerequisite : permission must be obtained from the chairman of the department. In this course the student undertakes a special project to develop his knowledge of scientific procedures as used by biologists. (Full course.)

BOTANY**507 - Botany 211. The Plant Kingdom**

A course on the nature and evolution of the plant world. The structure, physiology and reproductive processes of representative plants from the simplest to the most complex types are studied. The laboratory work is intended to acquaint the student with the variety of plant organisms and to illustrate botanical techniques. Lectures and laboratory. (Half course.)

507 - Botany 411. Systematics of the Vascular Plants

Prerequisite : Botany 211 or Biology 212. A survey of the classification, morphology, distribution and evolution of the flowering and cone-bearing plants and of the ferns. Local species as well as those of wider distribution are studied. Field work includes the preparation of a collection of plants by each student. Lectures and laboratory. (Full course.)

507 - Botany 412. Plant Anatomy

Prerequisite : Botany 211 or Biology 212. The internal anatomy and the phylogenetic development of structure in the vascular plants. Lectures and laboratory. (Full course.)

507 - Botany 413. Plant Physiology

Prerequisites : Botany 211, Physics 211; Chemistry 221 or 421 previously or concurrently. A study of the physiological activities of plants. Lectures and laboratory. (Full course.)

507 - Botany 414. Biology of Fungi, Bacteria and Viruses

Prerequisite: Botany 211. A survey of the fungi, bacteria and viruses. Their functional activities, morphology, distribution, evolution and classification are considered. Lectures and laboratory. (Full course.)

507 - Botany 415. Biology of the Non-Vascular Green Plants

Prerequisite: Botany 211. A survey of the algae, lichens, and mosses. Their functional activities, morphology, distribution, evolution and classification are considered. Lectures and laboratory. (Full course.)

507 - Botany 416. Plant Ecology

Prerequisite: Botany 411 previously or concurrently. A study of the interrelations between plants and their environment. Lectures and field trips. (Full course.)

507 - Botany 417. Plant Growth and Morphogenesis

Prerequisites: Botany 211, Chemistry 221 or 421, Botany 412 or 413 previously or concurrently. A physiological and biochemical study of plant growth substances (hormones) in relation to growth, cell and tissue differentiation, organogenesis, flowering, embryogenesis, and plant metabolism. (Full course.)

ZOOLOGY**508 - Zoology 222. The Animal Kingdom**

A course in general zoology. The structure, physiology, reproduction and evolution of representative species are considered. Lectures and laboratory. (Half course.)

508 - Zoology 421. Invertebrate Zoology

Prerequisite: Biology 221 or Zoology 222. A course on the structure, taxonomy and development of the invertebrate animals. Emphasis is placed on species of economic importance. Biological phenomena such as regeneration and the parasitic mode of life are considered. In the laboratory representatives of the principal invertebrate phyla are dissected. Field work includes the preparation of a collection of animals by each student. Lectures and laboratory. (Full course.)

508 - Zoology 422. Chordate Anatomy

Prerequisite: Zoology 222. The comparative anatomy of chordate animals, their reproduction, development, distribution and evolution. In the laboratory, representatives of the principal vertebrate classes are dissected. Lectures and laboratory. (Full course.)

508 - Zoology 423. Advanced Vertebrate Zoology

Prerequisite: Zoology 422. A course involving a study of selected groups of vertebrate animals. Lectures and laboratory. (Full course.)

508 - Zoology 424. Parasitology

Prerequisite: Zoology 222. A survey of the parasitic groups of invertebrates with special reference to the parasites of man. Lectures and laboratory. (Half course.)

508 - Zoology 425. Entomology

Prerequisite: Biology 221 or Zoology 222. An introduction to the study of insects, their morphology, taxonomy, physiology, and ecology. Lectures and laboratory. (Half course.)

508 - Zoology 431. Animal Physiology

Prerequisites: Zoology 222, Chemistry 221 or 421, Physics 211. A study of the physiological processes of animals at the cellular and system levels. Lectures and laboratory. (Full course.)

508 - Zoology 432. Advanced Animal Physiology

Prerequisites: Zoology 421, 422, 431 and Biology 451 previously or concurrently. Lectures and seminars dealing with selected topics in environmental and comparative physiology. Laboratory studies will include vertebrate and invertebrate representatives. (Full course.)

508 - Zoology 451. Animal Ecology

Prerequisites: Botany 211 or Biology 212, Zoology 222. The natural history of animals. A study of the interrelations between animals, groups of animals, and their environments. Zoological geography; migrations and other movements of animals. Ecology and evolution. Lectures only. (Full course.)

508 - Zoology 461. Vertebrate Embryology

Prerequisite: Zoology 422. The fundamental processes of growth and development in the vertebrates. A comparative study is made of selected vertebrate species. Lectures and laboratory. (Full course.)

508 - Zoology 471. Comparative Vertebrate Histology

Prerequisite: Zoology 422. A comparative study of the microscopic characteristics of cells, tissues and organs of the vertebrates. Lectures and laboratory. (Full course.)

Cognate Courses

Courses in related fields may be helpful or required for the student who plans a career in a branch of Biology. Among such courses are Chemistry 221 or 421, 441, 442, 443, German 215, and Mathematics 451.

CHEMISTRY

Roger H. C. Verschingel, *Professor of Chemistry and Chairman of the Department.*

Samuel Madras, *Professor of Chemistry.*
 John Russell Ufford, *Professor of Chemistry.*
 George Campbell, *Associate Professor of Chemistry.*
 James G. Dick, *Associate Professor of Chemistry.*
 Robin T. B. Rye, *Associate Professor of Chemistry.*
 Thomas J. Adley, *Assistant Professor of Chemistry.*
 Peter C. Bird, *Assistant Professor of Chemistry.*
 Zacharias Hamlet, *Assistant Professor of Chemistry.*
 Jacques Lenoir, *Assistant Professor of Chemistry.*
 Andrew D. Long, *Assistant Professor of Chemistry.*
 Rodrick E. Townshend, *Assistant Professor of Chemistry.*
 Ronald Westbury, *Assistant Professor of Chemistry.*

503 - Chemistry 211. General Chemistry

Prerequisite to all other chemistry courses. Fundamental development of the theory of chemistry. Lectures, conferences and laboratory. (Full course.)

503 - Chemistry 221. Elements of Organic Chemistry

Prerequisite : Chemistry 211. This course covers most of the functional groups in organic chemistry. Reaction mechanisms are stressed throughout the course. An introduction to the chemistry of selected heterocyclic systems and natural products is given. Where possible, examples will be taken from reactions of biological interest. Lectures and laboratory. (Full course.)

NOTE : — Credit will not be given for both Chemistry 221 and 421. Chemistry 421 is prerequisite for certain advanced courses.

Textbook : Roberts and Caserio, *Basic Principles of Organic Chemistry*, (Benjamin).

503 - Chemistry 231. Introductory Physical Chemistry

Prerequisites : Chemistry 211, Physics 211, Mathematics 451 previously or concurrently. Gas state, liquids and solutions, introduction to the solid state, introduction to thermodynamics, thermochemistry, electrochemistry and introduction to chemical kinetics. Lectures only. (Full course.)

Textbook : Barrow, *Physical Chemistry*, (McGraw-Hill, 2nd. ed.).

503 - Chemistry 401. Chemical Pedagogy

Prerequisites : Chemistry 211 and one full laboratory course. This course is designed for students whose scope is the methodology of teaching Chemistry at various levels. Topics considered will include : the objectives of chemical education, the presentation of chemical concepts, the communication skills, the mathematical skills, the editing of a course and its lectures, the philosophy of laboratory procedure, the examination, the text-book, planning and budgeting, visual aids. (Full course.)

503 - Chemistry 411. Introductory Inorganic Chemistry

Prerequisites : Chemistry 211, Mathematics 213 or 221. Atomic and molecular structure of simple ions and molecules. Spectroscopic techniques in structure determination acid-base properties and diagrams. Oxidation-reduction properties and pH-potential diagrams. Coordination compounds. Crystal structure. The laboratory consists of selected experiments in UV, IR, DTA, pH and potential determinations and synthesis of compounds. (Half course.)

Textbook : Douglas and McDaniel, *Concepts and Models of Inorganic Chemistry*, (Blaisdell).

503 - Chemistry 412. Introductory Quantitative Analysis

Prerequisites : Chemistry 221, Mathematics 213 or 221. Statistical treatment of data, chemical equilibrium applied to gravimetric and volumetric procedures, fundamental principles of quantitative analysis applied to neutralization, precipitation, complex formation and oxidation-reduction techniques. Application of potentiometric and absorptiometric techniques in quantitative analysis. Lectures and laboratory. (Half course.)

Textbook : Day and Underwood, *Quantitative Analysis*, (Prentice-Hall).

503 - Chemistry 415. Intermediate Inorganic Chemistry

Prerequisites : Chemistry 411, 412; Chemistry 432 previously or concurrently. Amplification of periodic classification, oxidation-reduction, electronegativity and crystal chemistry. Discussion of non-aqueous, non-stoichiometric systems and radiochemistry. Lectures and laboratory. (Full course.)

Textbook : Day and Selbin, *Theoretical Inorganic Chemistry*, (Reinhold).

503 - Chemistry 416. Advanced Inorganic Chemistry

Prerequisites : Chemistry 415; Mathematics 452. Introduction to quantum theory. Structure of atoms, molecules, metals, organo-metallic and coordination compounds. Lectures only. (Full course.)

Textbook : Liberles, *Introduction to Molecular Orbital Theory*, (Holt, Rinehart, Winston).

503 - Chemistry 417. Advanced Quantitative Analysis

Prerequisites : Chemistry 411, 412; Physics 211; Chemistry 490 previously or concurrently. The theory and practice of instrumental techniques of quantitative analysis involving coulometry, coulometric titrations, conductometry, conductometric titrations, electrogravimetry, voltammetry and polarography, spectrophotometry, fluorometry, turbidimetry, nephelometry, atomic absorption spectrometry, emission spectrography. Lectures and laboratory. (Half course.)

Textbook : Delahay, *Instrumental Analysis*, (MacMillan).

503 - Chemistry 421. Introductory Organic Chemistry

Prerequisite : Chemistry 211. Chemistry of aliphatic and aromatic compounds; structural isomerism and stereoisomerism; mechanisms, electronic theories and stereochemistry of organic reactions. Lectures and laboratory. (Full course.)

NOTE : — Students who have credit for Chemistry 221 may not take this course for credit.

Textbook : Morrison and Boyd, *Organic Chemistry*, (Allyn and Bacon)

503 - Chemistry 423. Advanced Organic Chemistry

Prerequisites : Chemistry 424 or 427, 432. Advanced topics in organic chemistry. Lectures only. (Half course.)

Textbook : Gould, *Mechanism and Structure in Organic Chemistry*, (Holt).

503 - Chemistry 426. Advanced Organic Chemistry II

Prerequisite : Chemistry 424 or 427. Chemistry of heterocyclic compounds. Application of advanced techniques to synthetic organic chemistry. Lectures and laboratory. (Half course.)

Textbook : Acheson, *An Introduction to the Chemistry of Heterocyclic Compounds*, (Wiley).

503 - Chemistry 427. Intermediate Organic Chemistry

Prerequisites : Chemistry 412, 421. Amplification of concepts presented in introductory organic chemistry; qualitative and quantitative analysis of organic compounds and mixtures. Lectures and laboratory. (Half course.)

NOTE : — Students who have credit for Chemistry 424 may not take this course for credit.

Textbooks : House, *Modern Synthetic Reactions*, (Benjamin).
 Breslow, *Organic Reaction Mechanisms*, (Benjamin).
 Saunders, *Ionic Aliphatic Reactions*, (Prentice-Hall).
 Cheronis and Entriken, *Semimicro Qualitative Organic Analysis*, (Interscience).

503 - Chemistry 432. Intermediate Physical Chemistry

Prerequisites : Chemistry 231, Mathematics 451. The three laws of thermodynamics and their applications to chemistry; heat, work and internal energy; entropy, free energy, chemical potential, fugacity, activity and activity coefficients; introduction to statistical thermodynamics. Lectures and laboratory. (Full course.)

Textbook : Klotz, *Chemical Thermodynamics*, (Benjamin).

503 - Chemistry 433. Advanced Physical Chemistry

Prerequisites : Chemistry 432; Mathematics 452 previously or concurrently. Statistical thermodynamics and chemical kinetics. Lectures and laboratory. (Full course.)

Textbooks : Laidler, *Chemical Kinetics*, (Mc-Graw-Hill).
 Salzberg, et al., *Laboratory Course in Physical Chemistry*, (Academic).
 Andrews, *Equilibrium Statistical Mechanics*, (Wiley).

503 - Chemistry 441. General Biochemistry

Prerequisites : Chemistry 221 or 421; one full course in Biology. This course will cover the chemical activities of living organisms. It will include a discussion of the basic building blocks of biopolymers, their polymeric forms and interdependence. The stress will be on the functional chemistry both physical and structural, occurring during growth, maturation and replication of the organism. The reactions involved in information transfer within and between cells and individuals and of their response to environmental stimuli will be included. (Full course.)

Textbook : West, Todd, Mason and Van Bruggen, *Textbook of Biochemistry*, (MacMillan).

503 - Chemistry 442. Advanced Biochemistry

Prerequisite : Chemistry 441. This course covers the chemistry and biochemistry of natural products. Three or four selected topics (terpenes, sterols, flavones, alkaloids, quinones, purines, pteridines, vitamins, phenolics, etc.) will be covered during a year. The lectures will cover analytical methods, proof of chemical structure, synthetic methods, biogenesis (by tracer methods, reaction mechanisms, etc.) and biochemical significance. Lecture and laboratory. (Full course.)

503 - Chemistry 443. Advanced Biochemistry II

Prerequisites : Chemistry 441 or permission of instructor. Selected topics in the biochemistry of functional processes. For example : muscle contraction, photosynthesis, nerve transmission, maintenance of homeostasis. (Full course.)

503 - Chemistry 450. Research Project and Thesis

Prerequisite : permission of the Chemistry department. The student will work on a research project under the direction of a staff member and write a thesis on the result. (Full course.)

NOTE : — This course is required of fourth-year Honours students. Some fourth-year major students may take it with special permission. Students planning to take this course should consult with the Chemistry department as early in their third year as possible.

503 - Chemistry 461. Industrial Inorganic Chemistry

Prerequisite : Chemistry 211. Study of industrial inorganic processes. The industries discussed include those concerned with mineral acids, alkalies, synthetic ammonia, fertilizers, cements, ceramics, glass, electrothermal products, electrometallurgy, water treatment, etc. This course is not applicable towards a major in Chemistry. Lectures only. (Half course.)

503 - Chemistry 462. Industrial Organic Chemistry I

Prerequisite : Chemistry 221 or equivalent. This course is similar to Chemistry 461, but deals with the field of organic chemistry. The industries discussed include those concerned with organic synthesis, fermentation, coal and wood distillation, petroleum refining, oils and fats, pulp and paper, paints, resins and plastics, rubber, etc. This course is not applicable towards a major in Chemistry. Lectures only. (Half course.)

503 - Chemistry 463. Industrial Organic Chemistry II

Prerequisite : Chemistry 221 or equivalent. This course is similar to Chemistry 462 but deals with other organic compounds. This course is not applicable towards a major in Chemistry. Lectures only. (Half course.)

503 - Chemistry 464. General Industrial Chemistry

Prerequisites : Chemistry 231 and 221 or equivalent. This course deals with some of the general aspects of industrial chemistry. The material covered includes : material balances, energy balances, the physical chemistry of industrial processes, factors governing plant location and choice of processes. This course is not applicable towards a major in Chemistry. Lectures only. (Half course.)

503 - Chemistry 471. Natural Products I

Prerequisite : Chemistry 221, or equivalent. Topics studied are : structures, stereochemistry and reactions of carbohydrates; syntheses, stereochemistry and physiochemical properties of amino acids; determination of amino acid sequences; synthetic methods and conformations of polypeptides and proteins. Lectures only. (Half course.)

NOTE : — Chemistry 471 may not be taken after Chemistry 441. Only one credit will be given for the combination Chemistry 471 followed by Chemistry 441.

Students who have credit for Chemistry 422 may not take this course for credit.

Textbooks : Guthrie and Honeyman, *An Introduction to the Chemistry of Carbohydrates*, 2nd ed., (Oxford).
 Kopple, *Peptides and Amino Acids*, (Benjamin).

503 - Chemistry 472. Chemistry of High Polymers I

Prerequisites : Chemistry 221 or equivalent, Chemistry 231. Survey of natural and synthetic polymers. Correlation of structure and properties of macromolecules. Methods and mechanisms of polymerization. Lectures only. (Half course.)

NOTE : — Students who have credit for Chemistry 425 may not take this course for credit.

Textbook : Stille, *Introduction to Polymer Chemistry*, (Wiley).

503 - Chemistry 473. Natural Products II

Prerequisite : Chemistry 221 or equivalent. The synthesis, stereochemistry and structure determination of lipids (triglycerides, phospholipids, sphingolipids and sterols), steroid hormones, antibiotics and nucleotides. Lectures only. (Half course.)

NOTE : — Chemistry 473 may not be taken after Chemistry 442. Only one credit will be given for the combination Chemistry 473 and 442.

503 - Chemistry 474. Physical Chemistry of High Polymers II

Prerequisites : Chemistry 221 or equivalent, Chemistry 231. Comparison of physical properties of monomers and polymer molecules. Effect of structure on polymer properties. Polymerization mechanisms and kinetics. Distribution functions of chain length and composition of polymer molecules. Confirmations and configurations. Phase transitions in polymers. Solution properties. Methods of molecular weight determination. Lectures only. (Half course.)

503 - Chemistry 490. Introductory Chemical Instrumentation

Prerequisites : Chemistry 221 or equivalent, 231, 412, Mathematics 451. Basic principles of optics relating to UV and IR spectroscopy and instrumentation. Basic principles of NMR, mass spectrometry, and gas chromatography. Transducers and related principles of electricity and electronics in chemical instrumentation. Lectures and laboratory. (Full course.)

Textbooks : Dyer, *Applications of Absorption Spectroscopy of Organic Compounds*, (Prentice-Hall).
Malmstadt et al., *Electronics for Scientists*, (Benjamin).

503 - Chemistry 491. Advanced Chemical Instrumentation

Prerequisites : Chemistry 413 or 417, 424 or 427, 432 and 490. Theory and applications of emission spectroscopy, absorption spectroscopy, X-ray spectrometry, nuclear magnetic resonance, electron paramagnetic resonance, mass spectrometry, etc. (Full course.)

Textbook : Banwell, *Molecular Spectroscopy*, (McGraw-Hill).

GEOLOGY

André N. Deland, *Assistant Professor of Geology, and Chairman of the Department*.

Henry S. de Romer, *Assistant Professor of Geology*.

506 - Geology 211. Physical Geology

An introductory course to the study of the earth. Principles and methods of physical geology are emphasized with occasional discussion on the historical aspects of geology. The earth's materials including minerals, rocks, soils, fossils, surface water and ground water and their formation are examined. The surface processes both constructive and destructive and the resulting landforms are studied. The earth's forces and movements; the structures of its crust and interior. During the laboratory periods, the student will study the various materials of the earth. With geological, topographic, geophysical maps and aerial photographs, he will interpret landforms and structures. Lectures and laboratory. (Full course.)

506 - Geology 212. Earth History and Stratigraphy

The earth's past history both physical and biological as revealed in strata and by fossils. Introduction to the methods and principles of historical geology, stratigraphy and sedimentation. Study of paleogeographic maps. Systematic examination from the oldest known rocks to the youngest ones and from the oldest known fossils to the most recent ones including the history of man. Studies of the various rock, time-rock and time units. Stratigraphic correlation by means of lithology and paleontology. Typical stratigraphic sections will be examined. Lectures only. (Full course.)

506 - Geology 221. Mineralogy

The study of the physical properties of minerals; their chemical properties; descriptive and determinative mineralogy; crystallography; various classes of symmetry. A few field trips near Montreal. Lectures and laboratory. (Half course.)

Textbook : Berry and Mason, *Mineralogy*.

506 - Geology 222. Optical Mineralogy

Prerequisite : Geology 221. The study of minerals under the polarizing or petrographic microscope. Identification of minerals in thin sections and in oil immersion. Lectures and laboratory. (Half course.)

Textbook : Wahlstrom, *Optical Crystallography*.

506 - Geology 223. Paleontology

The principles and methods of paleontology. Nature of fossils and the succession of life on earth. The study of ancient forms of life as seen in fossils, plants, invertebrates and vertebrates. The history, development and imperfection of this fossil record. Study of the various phyla and classes. The meaning and methods of evolution. Evolution as seen in fossils. Techniques for the collecting of fossils and preparation of illustrations. Examples of fossil occurrences and how they are used. Lectures and laboratory. (Half course.)

506 - Geology 411. Petrology

Prerequisite : Geology 211 previously or concurrently. The three classes of rocks; composition and crystallization of the magma; forms, textures and structures of igneous rocks; mineralogy, texture, structure and origin of sedimentary rocks; types of metamorphism and their products : metamorphic minerals, processes and structures; rock nomenclature. This course is usually taken by the student who has a good knowledge of mineralogy. Lectures and laboratory. (Full course.)

NOTE : — Students who have credit for Geology 231 may not take this course for credit.

Textbook : Huang, *Petrology*.

506 - Geology 421. Structural Geology

Prerequisite : Geology 211 previously or concurrently. Mechanical principles of rock deformation; description and representation of folds, faults and joint patterns; classification of these structures; secondary foliation and lineation; unconformities; granite tectonics; plutonic rocks and lava flows. About one-third of the lecture time is spent solving structural problems by orthographic and stereographic projections. This course is usually taken by the student who has a good knowledge of physical geology and mineralogy. (Full course.)

NOTE : — Students who have credit for Geology 241 may not take this course for credit.

Textbook : Billings, *Structural Geology*.

MATHEMATICS

Norman Edward Smith, *Professor of Mathematics, and Chairman of the Department.*

Frederick W. Bedford, *Associate Professor of Mathematics.*
 Mary A. Brian, *Associate Professor of Mathematics.*
 Victor Byers, *Associate Professor of Mathematics.*
 Martin Harrow, *Associate Professor of Mathematics.*
 John Senez, *Associate Professor of Mathematics.*
 Jean C. Turgeon, *Associate Professor of Mathematics.*
 Edna Vowles, *Associate Professor of Mathematics.*
 Kailash K. Anand, *Assistant Professor of Mathematics.*
 Gerard E. Cohen, *Assistant Professor of Mathematics.*
 T. Dwivedi, *Assistant Professor of Mathematics.*
 Abraham S. Fox, *Assistant Professor of Mathematics.*
 James C. Hayes, *Assistant Professor of Mathematics.*
 G. S. Lingappaiah, *Assistant Professor of Mathematics.*
 M. Malik, *Assistant Professor of Mathematics.*
 Eugen A. Pollitzer, *Assistant Professor of Mathematics.*
 Manfred E. Szabo, *Assistant Professor of Mathematics.*
 Diana Y. Wei, *Assistant Professor of Mathematics.*
 M. Zaki, *Assistant Professor of Mathematics.*
 A. M. Chrysovergis, *Lecturer in Mathematics.*
 N. Herscovics, *Lecturer in Mathematics.*
 Leonda S. Adler, *Sessional Lecturer in Mathematics.*
 S. Bekker, *Sessional Lecturer in Mathematics.*
 M. Alberta Boswall, *Sessional Lecturer in Mathematics.*
 Jean C. Chalk, *Sessional Lecturer in Mathematics.*
 Alma N. Dobson, *Sessional Lecturer in Mathematics.*
 Charles Fox, *Visiting Professor of Mathematics.*

FIRST YEAR MATHEMATICS REQUIREMENTS

Science

- (1) A student who has passed the High School Leaving examinations in Elementary Algebra and Geometry, must take Mathematics 213 and 223.
- (2) A student who has passed the High School Leaving examinations in Elementary Algebra and Geometry, and who has, in addition, obtained grades of 65% or better in the High School Leaving examinations in Intermediate Algebra and Trigonometry must take both Mathematics 233 and 451, or both Mathematics 213 and 223.
- (3) A student who has passed the High School Leaving examinations in Elementary Algebra and Geometry and who has passed the Senior Matriculation examinations in Intermediate Algebra and Trigonometry will receive one credit in Mathematics, and must take Mathematics 233.
- (4) A student who has passed the High School Leaving examinations in Elementary Algebra, Geometry, Intermediate Algebra and Trigonometry and the Senior Matriculation examinations in Analytic Geometry and Calculus will receive one credit in Mathematics, and must take Mathematics 450.
- (5) A student not fitting any of these categories should consult the Mathematics Department.

Engineering

- (1) Students must take Mathematics 293 and 294.
- (2) Students who have not passed Trigonometry and/or Intermediate Algebra will also be required to take Mathematics 202 and/or 203.

Commerce

- (1) Students must take Mathematics 251 or 415 or 451.

NOTE : — Many of the elementary Mathematics courses contain duplications. Following is a list of these courses accompanied by two letters. No student may take two courses which have letters in common.

Mathematics 213 P, Q.
 Mathematics 223 R, S.
 Mathematics 233 Q, S.
 Mathematics 251 P, T.
 Mathematics 415 S, U.
 Mathematics 450 Q, U.
 Mathematics 451 T, U.

502 - Mathematics 201. Elements of Mathematics

This course is offered for students who have not had the usual pre-university training in mathematics. Subject matter: Elementary algebra up to and including simultaneous quadratic equations, and indices; certain theorems and problems in plane geometry. Students may have the option of taking an extra tutorial period, and may be required to do so at the instructor's discretion. (Full course.)

NOTE : — Students who have received credit toward their admission for high-school Mathematics may not take this course for credit.

This course will not satisfy the requirements in Mathematics for any degree or diploma. It may be counted as an option in the Faculty of Science by students eligible to receive credit for it.

502 - Mathematics 213. Algebra

Sets; function; natural, integral, rational, real and complex numbers; logarithms; inequalities; permutations and combinations; mathematical induction; theory of equations; determinants. (Full course.) See Note on course duplications.

502 - Mathematics 223. Analytical Trigonometry and Geometry

Prerequisite : Mathematics 213 previously or concurrently. Coordinate systems; distance formula; angular measures; trigonometry — function, right triangle, identities, composite angles, oblique triangle, inverse functions, equations; complex numbers in polar form; geometry — translation, rotation, straight line, circle, parabola, ellipse, hyperbola, parametric equations. (Full course.) See Note on course duplications.

502 - Mathematics 233. Algebra and Analytic Geometry

Prerequisite : 65% in high-school Trigonometry and Intermediate Algebra. Day Science students registering for this course must also register for a special section of Mathematics 451 concurrently. Algebra — sets, functions, number systems, inequalities, mathematical induction, theory of equations, determinants; Geometry — coordinate systems, distance formula, translation, rotation, straight line, circle, parabola, ellipse, hyperbola, parametric equations. (Full course.) See Note on course duplications.

502 - Mathematics 251. Fundamental Mathematics

This course is intended primarily for Commerce students and includes selected topics from Algebra and Calculus as follows : sets; relations and functions and their graphs; straight line and circle; exponential and logarithmic functions; progressions, elementary theory of equations; inequalities; permutations, combinations and binomial theorem; limits and continuity; differentiation of rational, exponential, and logarithmic functions with applications; integration with applications. (Full course.) See Note on course duplications.

502 - Mathematics 411. Algebraic Systems

Prerequisites : Mathematics 451 or 450 previously or concurrently; Mathematics 431 previously or concurrently. Two by two and three by three matrices; rings and fields; integers; rational, real, and complex number fields; elementary group theory; vector spaces over a field; dimension; matrices and linear transformations. (Full course.)

NOTE : — Students credited with Mathematics 459 prior to 1968 may not take Mathematics 411 for credit.

502 - Mathematics 415. Topics in Calculus

Prerequisite : Mathematics 251. This course is intended primarily for Commerce students and includes selected topics from Trigonometry, Analytic Geometry, Differential and Integral Calculus of one and several variables. (Full course.) See Note on course duplications.

502 - Mathematics 431. Analytic Geometry and Series

Prerequisites : Mathematics 450 previously or concurrently, or Mathematics 451 previously or concurrently. Continuation of plane geometry; co-ordinate systems in space, line, plane and other surfaces; vectors, inner and outer products, linear dependence and bases, directional derivative; sequences and series, tests for convergence, power series. (Full course.)

502 - Mathematics 440. Introductory Mathematical and Applied Statistics

Prerequisites : Mathematics 451 or 450. This course emphasizes the various applications of statistics and probability with sufficient mathematical theory to give unification and continuity. Probability, distributions, moments and sampling theory are introduced; problems in estimation, hypothesis testing, correlation and regression, elementary experimental design and analysis are considered with applications to various disciplines. (Full course.)

NOTE : — This course is designed for students who do not intend to specialize in Statistics.

Only one full credit will be given from among Mathematics 440, Statistics 242, Sociology 241, Economics 481, Social Science 241, Psychology 241.

502 - Mathematics 441. Mathematical Statistics

Prerequisites : Mathematics 450 or 451, Mathematics 431, and Mathematics 411 previously or concurrently. The introductory, mathematical theory of statistics, including discrete and continuous probability theory. Bayes theorem and related topics, probability distributions and densities, expectation and moment generating functions, sums of random variables, law of large numbers and Central Limit Theorem, sampling distributions, point and interval estimation, parametric and non-parametric hypothesis testing. (Full course.)

NOTE : — This course is designed for students who intend to specialize in Statistics.

Only one credit will be given for a combination of Mathematics 441 with any of Mathematics 440, Mathematics 241, Statistics 242, Sociology 241, Economics 481, Social Science 241, Psychology 241.

502 - Mathematics 442. Experimental and Survey Statistics

Prerequisites : Mathematics 441; Computer Science 471 previously or concurrently during the first term. Principles of design, various experimental designs. Analysis of variance, regression, additional and subsidiary techniques. Non-parametric designs. Introduction to response surface exploration. Planning of surveys, theory of survey sampling. Programming and computer solution of selected problems. (Full course.)

502 - Mathematics 444. Methods of Operations Research

Prerequisites : Mathematics 452; Mathematics 441 or 440 previously or concurrently. Formulation of mathematical models in the deterministic and probabilistic cases, methods of solution, testing the models. Applications to inventory, queuing, allocation (linear and dynamic programming, duality), competition (game theory), scheduling, networks and flow. Emphasis on mathematical methods, including Laplace and a transforms, matrix algebra, search techniques, simulation. (Full course.)

502 - Mathematics 446. Industrial Statistics

Prerequisites : Mathematics 441; Computer Science 471 previously or concurrently during first term. Methods of control, primarily by various types of charts. Assignable causes. Acceptance sampling in batch and continuous cases, by various methods. Statistical aspects of tolerances and process capability. Narrow limit gauging. Problems of poor data. Operating characteristic curves of all plans considered. Applications of regression and correlation, and non-parametric techniques. The statistics of reliability and life testing, series and parallel systems, redundancy. Programming and computer solutions of selected programmes. (Full course.)

502 - Mathematics 448. Probability and Stochastic Processes

Prerequisites : Mathematics 441, 452, 459. Sample spaces, combinatorial analysis, theorems and applications of probability, including limit theorems, generating functions, branching processes, random walk and ruin problems. Discrete and continuous stochastic processes of Markov and general types, correlations, spectral and other representations. (Full course.)

502 - Mathematics 450. Algebra and Continuation of Elementary Calculus

Prerequisites: Junior Matriculation courses in Intermediate Algebra and Trigonometry, and Senior Matriculation courses in Analytic Geometry and Calculus, or their equivalents. The subject matter of the course consists of parts of Mathematics 213 and Mathematics 451 not previously covered. It is intended primarily for students transferring into the second year. Upon successful completion of this course the student would be in the same situation as one who had credits in Mathematics 233 and Mathematics 451. (Full course.) See Note on course duplications.

502 - Mathematics 451. Calculus

Prerequisites: (a) Mathematics 213, 223, (b) Mathematics 233 previously in the Evening Division and concurrently in the Day Division, (c) Mathematics 211, 221, 231. Limits, differentiation and integration of rational and trigonometric functions, applications, mean value theorems, differentials, properties of the definite integral, logarithmic and exponential functions, Taylor's expansion, partial differentiation. (Full course.) See Note on course duplications.

502 - Mathematics 452. Differential Equations

Prerequisites: Mathematics 451; 431 previously or concurrently. First order first degree equations, linear equations, operators, Laplace transforms, series solutions and special functions, numerical methods, elementary partial equations Fourier series. (Full course.)

NOTE: — Only one full credit will be given from among Mathematics 452, 455 and 456.

502 - Mathematics 457. Advanced Calculus

Prerequisites: Mathematics 431, 451. Indeterminate forms, partial differentiation, multiple integrals, line integrals improper integrals, gamma and beta functions, basic complex integral theorems, residue theory. (Full course.)

NOTE: — This course is intended primarily for Physics students. It does not serve as prerequisite to Mathematics 461 or 462.

Only one full credit will be given from among Mathematics 453, 454, 457, and 458.

502 - Mathematics 458. Intermediate Analysis

Prerequisites: Mathematics 431, 451. Indeterminate forms, partial differentiation, multiple integral, line integrals, series, improper integrals, gamma and beta functions, orthogonal functions. (Full course.)

NOTE: — Only one full credit will be given from among Mathematics 453, 454, 457, and 458.

502 - Mathematics 459. Linear Algebra

Prerequisites: Mathematics 411, 431, 451. Vector spaces, linear transformations, matrices, determinants, equivalence relations on matrices, characteristic values, metric concepts, matrix functions, convex sets. (Full course.)

502 - Mathematics 461. Real Variable

Prerequisites: Mathematics 458, or 453 and 454. Definition of real numbers, set theory, continuity, differentiation, mean value theorems, functions of bounded variation, Riemann-Stieltjes integration, selected topics. (Full course.)

502 - Mathematics 462. Complex Variable

Prerequisites: Mathematics 458, or 453 and 454. Elementary functions, Cauchy-Riemann equations, integration, Cauchy's integral theorem, Taylor's and Laurent's theorems, calculus of residues, analytic continuation, conformal mapping. (Full course.)

502 - Mathematics 463. Abstract Algebra

Prerequisite: Mathematics 459. Integral domains, rings, fields, groups, selected topics. (Full course.)

502 - Mathematics 471. Digital Computer Programming

This course now offered as Computer Science 471.

502 - Mathematics 472. Numerical Analysis

Prerequisites: Mathematics 450 or 451, Mathematics 411, 431. Introduction to computers and Fortran, solutions of equations, curve fitting, numerical differentiation and integration, matrix computation, errors. Lectures and laboratory. (Half course.)

NOTE: — Only one-half credit will be given from among Computer Science 471 and Mathematics 472.

502 - Mathematics 481. Set Theory and Logic

Prerequisites: three 400-level Mathematics courses. Formal systems of logic and their application to the formulation of mathematical arguments; the Zermelo-Fraenkel theory of sets; ordinal and cardinal numbers. (Half course.)

502 - Mathematics 202

502 - Mathematics 203

502 - Mathematics 291

502 - Mathematics 292

502 - Mathematics 293

502 - Mathematics 294

502 - Mathematics 295

502 - Mathematics 296

502 - Mathematics 391

502 - Mathematics 392

502 - Mathematics 393

See Faculty of Engineering

COMPUTER SCIENCE

930 - Computer Science 410. Advanced Computer Programming

Prerequisite : Computer Science 211/212. Study of information representations and relationships. Formal description of algorithmic languages, e.g. ALGOL, and the techniques used in their compilation. Study of syntax, semantics, ambiguities, procedures, replication, iteration, and recursion. Theory of compilers. A study will be made of certain languages which can be specified in mathematical terms. These languages will be defined and their properties derived. Lectures and laboratory. (Full course.)

930 - Computer Science 420. Introduction to Automata Theory and Theory of Computation

Prerequisites : Mathematics 431, 451, Computer Science 211/212. A study of various types of automata, such as finite, probabilistic, growing, and reproducing automata. Representation of automata by state graphs, logical nets, recursive functions and machines. Theory of Computability. Analysis of continuous, finite, and infinite state machines. (Full course.)

930 - Computer Science 430. Logical Design and Switching Theory

Prerequisite : Mathematics 431. Symbolic logic and Boolean algebra for description and analysis of switching circuits; error detecting and correcting codes; storage elements defined logically; basic sequential circuits; digital design principles. (Half course.)

930 - Computer Science 471. Digital Computer Programming and Numerical Methods

Prerequisite : Mathematics 452 or 455 previously or concurrently. A course in computer programming oriented to senior students in the Sciences. This course will teach the students Fortran programming with applications in numerical analysis and advanced mathematical techniques. Lectures and laboratory. (Half course.)

NOTE : — 1. This course was formerly offered as Mathematics 471.
 2. Only a half-credit will be given from among Computer Science 211, 471, Mathematics 471, Engineering 214, 371.
 3. Additional courses at a more elementary level are available as electives from the Faculty of Engineering.

PHYSICS

Walter R. Raudorf, *Professor of Physics and Chairman of the Department.*

Jean-Pierre Petolas, *Associate Professor of Physics.*

Ramesh C. Sharma, *Associate Professor of Physics.*

Adolph E. Smith, *Associate Professor of Physics.*

David E. Charlton, *Assistant Professor of Physics.*

Barry Frank, *Assistant Professor of Physics.*

Arlin L. Kipling, *Assistant Professor of Physics.*

J. A. MacKinnon, *Assistant Professor of Physics.*

Sushil K. Misra, *Assistant Professor of Physics.*

Stanley P. Morris, *Assistant Professor of Physics.*

Francisco Tomas, *Director of Physics Laboratories.*

504 - Physics 210. Great Discoveries in Modern Physics

This course is intended primarily for Arts students. It traces the fundamental ideas of modern physics and their historical development by a descriptive and reflective study of the most telling discoveries in modern physics. Lectures only. (Full course.)

NOTE : — Students who have credit for Physics 211 may not take this course for credit.

References : Bennett, *Physics without Mathematics.*

Beiser, *World of Physics.*

DeBroglie, *Physics and Microphysics.*

Semat and White, *Atomic Age Physics.*

504 - Physics 211. General Physics (Introductory)

Prerequisites : Mathematics 213 and 223, or 233, or 211 and 221 previously or concurrently. Elements of mechanics, sound, heat, magnetism, electricity, and light. A semi-quantitative approach using only elementary mathematical methods. This course may be taken by students having no previous knowledge of physics. Lectures and laboratory. (Full course.)

References : Smith and Cooper, *Elements of Physics.*

Morgan, *Introduction to University Physics.*

504 - Physics 222. Sound and Light

Prerequisites : Physics 211; Mathematics 451 previously or concurrently. Simple harmonic motion, waves, Huygen's principle, interference and diffraction of sound and light, acoustics, lenses and mirrors, illumination, polarization, origin of spectra. Lectures and laboratory. (Half course.)

References : Robertson, *Introduction to Physical Optics.*

Jenkins and White, *Principles of Optics.*

Sears, *Optics.*

504 - Physics 232. Heat

Prerequisites : Physics 211; Mathematics 451 previously or concurrently. Temperature, thermal properties of matter, gas laws, kinetic theory, the laws of thermodynamics, heat engines, heat transfer. Lectures and laboratory. (Half course.)

References : Marshall and Pounder, *Physics.*

Zemansky, *Heat and Thermodynamics.*

Weber, *Heat and Temperature Measurement.*

Sears, *Mechanics, Wave Motion and Heat.*

504 - Physics 440. Mechanics

Prerequisites : Physics 211; Mathematics 451 previously or concurrently. Methods of Plane Kinematics, Statics and Dynamics. Lectures and laboratory. (Half course.)

References : D. E. Christie, *Vector Mechanics.*

Kittel, *Mechanics.*

504 - Physics 441. Statics and Dynamics

Prerequisites : Physics 211, 440, Mathematics 451. Analytic and vector mechanics of particles and rigid bodies, gyroscopic motion, Lagrange's equations, Hamilton's principle, some non-holonomic systems, Relativity. Lectures only. (Full course.)

References : Becker, *Introduction to Theoretical Mechanics.*

Fowles, *Analytical Mechanics.*

Lamb, *Statics.*

504 - Physics 442. Mechanics of Continuous Media

Prerequisites : Physics 211; Mathematics 451 previously or concurrently. General properties of matter; elasticity; stress and strain; compressibility of liquids, solids and gases; fluid statics; surface tension; fluid dynamics; flow of ideal and real fluids. Lectures and laboratory. (Half course.)

References : D. E. Christie, *Vector Mechanics*.

504 - Physics 451. Advanced Electricity and Magnetism

Prerequisites : Physics 211, 452, Mathematics 451. This course is intended chiefly for students honouring in Physics. It is a continuation of Physics 452 with emphasis on the application of Maxwell's Equations, circuit concepts, transmission lines, radiation, and wave propagation. Lectures only. (Full course.)

References : Tralli, *Electromagnetic Theory*.

Slater and Frank, *Electromagnetism*.

Corson and Lorrain, *Electromagnetic Fields and Waves*.

Cheston, *Electric and Magnetic Fields*.

504 - Physics 452. Electricity and Magnetism

Prerequisites : Physics 211, Mathematics 451. Analysis of direct-current circuits; steady-state magnetism; chemical and thermal effects of a current; electrostatic problems; charged particles in electric and magnetic fields; electromagnetic induction; transient currents; analysis of alternating current circuits; transformers; basic electronics. Lectures and laboratory. (Full course.)

References : Duckworth, *Electricity and Magnetism*.

Page and Adams, *Principles of Electricity*, 3rd ed.

Purcell, *Electricity and Magnetism*.

504 - Physics 453. Electronics

Prerequisite : Physics 452 or equivalent. Electric and magnetic properties of solids, semiconductors, transistors, vacuum tubes, transistor and vacuum tube amplifiers, oscillators, modulation theory, switching circuits, analog computers. (Full course.)

References : Dept. of the Army, Tech. Manual No. 11-690, *Basic Theory and Application of Transistors*.

Brophy, *Basic Electronics for Scientists*.

504 - Physics 461. Atomic and Nuclear Physics

Prerequisites : Physics 211; Mathematics 451. Special relativity theory, quantum theory. Elementary particles, structure of the atom, X-rays, Compton effect, photo-electric effect, Bohr's theory of atomic spectra, De Broglie waves, Schrodinger's equation, radioactivity, nuclear physics, atomic energy, cosmic rays. Lectures and laboratory. (Full course.)

References : Eisberg, *Fundamentals of Modern Physics*.

Finkelburg, *Structure of Matter*.

504 - Physics 471. Methods of Theoretical Physics

Prerequisites : Physics 441, 452; Mathematics 452 or 455, and 457 or 453 previously or concurrently. Application of differential equations, Fourier transforms, vector and tensor analysis to problems in physics. Lectures only. (Full course.)

References : W. V. Houston, *Principles of Mathematical Physics*.

A. J. McConnell, *Applications of Tensor Analysis*.

Morse and Feshbach, *Methods of Theoretical Physics*.

L. P. Smith, *Mathematical Methods of Scientists and Engineers*.

504 - Physics 472. Introductory Quantum Mechanics

Prerequisite : Physics 461. This course is mainly for students honouring in Physics. Basic postulates, operators and statefunction, Schrodinger's equation, one-dimensional motion, harmonic oscillator, central potential, angular momentum, matrix representation, equations of motion, spin, approximation methods, scattering. (Full course.)

References : Dicke and Wittke, *Introduction to Quantum Mechanics*.

Park, *Quantum Theory*.

Schiff, *Quantum Mechanics*.

504 - Physics 481. Biophysics

Prerequisites : Chemistry 231, Physics 211, one course in Biology. Topics treated will include the biophysical view of the cell, energy relations in the cell, action of ionizing radiation, biophysics of muscle and nerve. Lectures and laboratory. (Half course.)

Reference : Oncley, *Biophysical Science*.

504 - Physics 491. Methods of Experimental Physics

Prerequisites : Physics 453, 461. An advanced laboratory course required for majors and Honours students. Experiments are selected from spectroscopy, electronics, solid state and nuclear physics. The student will be expected to perform altogether about eight experiments. Laboratory only. (Full course.)

504 - Physics 291**504 - Physics 293****504 - Physics 391**

See Faculty of Engineering.

VIII

Faculty of Commerce

CURRICULUM FOR THE DEGREE

General Curriculum	Honours in Economics	Major in Economics	Major in Accounting
FIRST YEAR			
1. Maths. 251 or 415 or 451	Maths. 251	Maths. 251	Maths. 251
2. English 211	Eng. 211	Eng. 211	Eng. 211
3. Economics 211	Econ. 211	Econ. 211	Econ. 211
4. Psychology 211	Psych. 211	Psych. 211	Psych. 211
5. Accountancy 211	Accty. 211	Accty. 211	Accty. 211
SECOND YEAR			
Accountancy 411 6. or Finance 416	Accty. 411 or Fin. 416	Accty. 411 or Fin. 416	Accty. 411 —
7. English Literature	Eng. Lit.	Eng. Lit.	Eng. Lit.
8. Management 211	Mgt. 211	Mgt. 211	Mgt. 211
9. Sociology 211	Sociol. 211	Sociol. 211	Sociol. 211
Qu. Methods 242 10. or Maths. 441	Q.M. 242 or Maths. 441	Q.M. 242 or Maths. 441	Q.M. 242 or Maths. 441
11. Econ. Elective**	Econ. 411	Econ. 411	Econ. 451
THIRD YEAR			
12. Management 421	Mgt. 421	Mgt. 421	Mgt. 421
13. Management 430	Mgt. 430	Mgt. 430	Mgt. 430
14. Finance 413	Fin. 413	Fin. 413	Fin. 413
15. Marketing 421	Mktg. 421	Mktg. 421	Mktg. 421
16. Qu. Methods 411	Q.M. 411	Q.M. 411	Q.M. 411
17. Elective***	Econ. 452	Econ. 451 or 452	Accty. 412
FOURTH YEAR			
18. Elective***	Econ. 421	Econ. 421	Accty. 441* Accty. 421*
19. Elective***	Econ. Elect.	Elect.	Accty. 431
20. Elective***	Econ. Elect.	Elect.	Elect.
21. Elective***	Econ. ½ Cr. Selected ½ Cr.	Econ. ½ Cr. Selected ½ Cr.	Elect.
22. Econ. Elective**	Econ. Elect.	Econ. Elect.	Econ. Elect.
23. Management 453	Mgt. 453	Mgt. 453	Mgt. 453

* Half Course.

** It is recommended that students select the two Economics courses from Economics 221, 271, 411, 424, 451, or 461.

*** The five electives may be selected from courses offered by any faculty. Two must be at the '400' level.

OF BACHELOR OF COMMERCE

Major in Management	Major in Finance	Major in Marketing	Major in Quant. Methods
Maths. 251	Maths. 251	Maths. 251	Maths. 251
Eng. 211	Eng. 211	Eng. 211	Eng. 211
Econ. 211	Econ. 211	Econ. 211	Econ. 211
Psych. 211	Psych. 211	Psych. 211	Psych. 211
Accty. 211	Accty. 211	Accty. 211	Accty. 211
Accty. 411 or Fin. 416			
Eng. Lit.	Eng. Lit.	Eng. Lit.	Eng. Lit.
Mgt. 211	Mgt. 211	Mgt. 211	Mgt. 211
Sociol. 211	Sociol. 211	Sociol. 211	Sociol. 211
Q.M. 242 or Maths. 441			
Econ. Elect.	Econ. 451	Econ. Elect.	Econ. Elect.
Mgt. 421	Mgt. 421	Mgt. 421	Mgt. 421
Mgt. 430	Mgt. 430	Mgt. 430	Mgt. 430
Fin. 413	Fin. 413	Fin. 413	Fin. 413
Mktg. 421	Mktg. 421	Mktg. 421	Mktg. 421
Q.M. 411	Q.M. 411	Q.M. 411	Q.M. 411
Mgt. 451	Elect.	Elect.	Maths. 415
Mgt. 452	Fin. 423	Mktg. 451	Q.M. 412
Mgt. 432 or 433	Fin. 424	Mktg. Elect.	Q.M. 421
Elect.	Fin. 425	Mktg. Elect.	Q.M. 442
Elect.	Elect.	Elect.	Elect.
Econ. Elect.	Econ. Elect.	Econ. Elect.	Econ. Elect.
Mgt. 453	Mgt. 453	Mgt. 453	Mgt. 453

FACULTY OF COMMERCE

Gunther Brink, *Dean.*

NOTE: — Courses which are no longer offered and those whose titles and course numbers have been changed are listed in Section XVIII.

PHILOSOPHY OF THE COMMERCE PROGRAMME

This Faculty is engaged in the education of students for business life. It is our intention to graduate students liberally educated about business. To accomplish this we have designed a multi-disciplinary and inter-disciplinary curriculum which is intellectually challenging.

The first two years of the programme are intended to provide an informative accumulation of operational attitudes, skills and tools which form the base for the core concentration.

The core concentration in the third year attempts to give broad experience in all phases of business in a co-ordinated, analytical and reflective period of study. All the resources of the student's intellectual ability are combined with his interdisciplinary studies to analyze, formulate, judge, and solve challenging business situations.

The last year of the programme is intended to provide the student with an opportunity to immerse himself in an area of specialized study. In addition, the student participates in a course which is designed to test his ability to integrate his knowledge and to view the study of business as a whole.

FRENCH LANGUAGE

The business community, as well as governments, now express a preference for university graduates who are bilingual. We, therefore, advise all students to take advantage of the opportunities available during their years at this University to ensure that they are bilingual when they present themselves for employment upon graduation.

INTEGRATION OF PRESENT STUDENTS INTO THE NEW CURRICULUM

All students registered prior to the 1965/66 academic year have an approved programme of courses outlining their integration into the new curriculum. They will continue to follow their approved programme even though they may not have some of the specific prerequisites stated for various new courses.

THE INSTITUTE OF CHARTERED ACCOUNTANTS

Students holding the Bachelor of Commerce degree with a Major in Accountancy from Sir George Williams University at the time of registering with the Institute may apply for exemption from the intermediate examinations of the Institute of Chartered Accountants of Quebec, and from three of the five years of apprenticeship required for the C.A. certificate. The Faculty of Commerce will recommend exemption for students based on academic achievement. Generally speaking, an overall 'C' grade average is required.

STUDENTS PLANNING GRADUATE STUDIES

Commerce students who expect to pursue postgraduate studies in business administration are generally advised to spend their undergraduate years in developing a broad and sound foundation in the social sciences and mathematics. The general commerce curriculum provides the necessary flexibility for this purpose. Majors in business subject areas such as accounting, management, finance and marketing are designed for students who intend to terminate their formal education with the bachelor degree.

Most Graduate Schools of Business require a 'B' average, particularly in the last two years of the undergraduate programme, as a basic entrance standard. In addition to this, candidates must write the Admission Test for Graduate Study in Business.

UNDERGRADUATE COMMERCE DEGREE AND SCHOOL OF RETAILING DIPLOMA

Undergraduate commerce students under the following plan may obtain the Bachelor of Commerce degree and receive a Diploma from the School of Retailing in a four-year period. This plan for undergraduate commerce students provides a high-standard retailing programme. To achieve this result, two courses have been added to the Marketing Department, Marketing 471 and Marketing 481.

Students who undertake to receive the Bachelor of Commerce Degree and the Retailing Diploma simultaneously must have the equivalent of two summers of store experience, and follow the major in marketing curriculum, choosing, in place of the two open electives, Marketing 471 and 481.

Undergraduate students must obtain the required store experience before entering third and fourth year. Students must make application to the Chairman of the Marketing Department during their second year to ensure summer store employment and admission to the special programme.

Please note that the School of Retailing also offers a two-year day programme leading to the Diploma in Retailing only. Applications should be made to the Director of the School of Retailing for this latter programme.

Students who hold a Bachelor of Commerce degree and who wish to receive the Retail Diploma, must complete or have completed the following or their equivalent : Marketing 421, 451, 471, 481 and two of the following : Marketing 431, 441, 461. These students must also have the required store experience.

ACCOUNTANCY

James G. Finnie, Professor of Accountancy and Chairman of the Department

Terence Brown, Assistant Professor of Accountancy

Donald W. Burke, Assistant Professor of Accountancy

Adam Dickie, Assistant Professor of Accountancy

Frank P. Dougherty, Assistant Professor of Accountancy

Harvey Mann, Assistant Professor of Accountancy

E. Brian Markland, Assistant Professor of Accountancy

800 - Accountancy 211. Accounting (Introductory)

An introductory course in accounting presenting the fundamental principles, emphasizing the application of those principles through modern procedure, applying the theory of double-entry with assets, liabilities, equity, income and expense accounts, utilizing special books of original entry, and controlling accounts, with emphasis on classification and disclosure in the preparation of financial statements. (Full course.)

800 - Accountancy 411. Accounting (Intermediate)

Prerequisite : Accountancy 211. A course continuing at a more advanced level, integrating the first-year work with more advanced theory and application, with emphasis on analytic method and interpretative processes, and relating particularly to procedural development while giving consideration to requirements of the companies acts. (Full course.)

800 - Accountancy 412. Accounting (Advanced)

Prerequisite : Accountancy 411. An advanced course in the principles of partnership formation, valuation, dissolution and liquidation; joint venture, consignments, installment sales, and insurance; bankruptcy, trusteeship, receivership and estates; preparation of statement of affairs, realization and liquidation reports; agency and branch accounting; parent and subsidiary accounting, including consolidations; special topics, and accounting theory. (Full course) with conference period when required.

800 - Accountancy 421. Cost Accounting (Introductory)

Prerequisite : Accountancy 411. This course provides a knowledge of the fundamentals of cost accounting; the essential records; methods of arriving at cost, including the following : purposes of cost accounting; elements of cost; process cost systems; job cost systems; controlling accounts and the cost records; accounting for materials; material storage and consumption; perpetual inventories and stores control; valuation of materials; accounting for labour cost; wage systems; accounting for manufacturing expense; distribution of manufacturing expense to production; the cost to make and sell; sundry forms; monthly closing entries; preparation of operation and financial statements; cost reports. A brief introduction to estimating and standard cost systems is also provided. (Half course.)

800 - Accountancy 422. Cost Accounting (Advanced)

Prerequisite : Accountancy 421. This course provides advanced and detailed knowledge of cost problems, records and practices, and cost accounting in relation to inventories, standard costs, budgetary control, and other devices of the various departments of a business, including the following : estimating cost systems; principles of standard costs, current and basic standards, variances, cost ratios, budgetary control; variable budgets; differential cost analyses; defective and spoiled work; by-products; idle and non-productive time; weighted averages; interest on investment; uniform cost methods; distribution and marketing costs; machine accounting; statistical and graphical cost reports; current cost accounting developments; statements. (Half course.)

800 - Accountancy 431. Auditing and Investigation

Prerequisite : Accountancy 411. The principles underlying the practice of auditing, including the purposes and advantages of an audit; type of audits and examinations; qualifications of an auditor; preparatory considerations; the use of working papers and audit programmes; systems of internal check; the audit of asset, liability, revenue and expense accounts and of business transactions generally; forms of fraud and its detection; the legal duties and responsibilities of auditors, and auditors' reports and certificates : investigation types, procedures and reports. (Full course.)

800 - Accountancy 441. Taxation

Prerequisite : Accountancy 211. This course is devised to give authentic and up-to-date information on one of the major factors in business today. Discussion of problems is encouraged. Topics covered include corporation and personal income taxes and a survey of sales taxes, estate taxes and succession duties, and other levies. (Half course.)

NOTE : — Students who have credit for Commercial Law 441 may not take this course for credit.

800 - Accountancy 451. Machine Accounting and Other Machine Applications

Prerequisite : Accountancy 411 or Finance 416. An introduction to the use of automatic and semi-automatic business machines in ledger keeping, billing, payroll, costing, process control, inventory records, report preparation, sales statistics and other applications. Emphasis is placed on the principles of integrated data processing through the use of punched cards, punched tape and magnetic tape. Several of the lectures will be delivered by specialists on specific types of machines. (Half course.)

FINANCE

G. Robert Curnew, *Associate Professor of Finance and Chairman of the Department.*

James E. Hatch, *Assistant Professor of Finance.*

David A. Kramer, *Assistant Professor of Finance.*

William S. Lewis, *Assistant Professor of Finance.*

Andrew Nobl, *Assistant Professor of Finance.*

805 - Finance 413. Business Finance

Prerequisites : Economics 211, Accountancy 411, Management 411 or Finance 416; third-year standing. An introductory study of the role of finance in the business enterprise and the economy. Subject are covered from the viewpoints of the borrower and the lender and the effects on both by government and society. (Full course.)

NOTE : — Students who have credit for Finance 411 and/or Finance 412 may not take this course for credit.

805 - Finance 416. Management Accounting

Prerequisite : Accountancy 211. A course designed for the non-accounting major. Emphasis is placed upon an understanding of accounting concepts to enable the student to interpret and evaluate accounting data. (Full course.)

NOTE : — Students majoring in Accountancy must take Accountancy 411. Students who have taken Accountancy 411 or Management 411 may not take this course for credit.

805 - Finance 423. Financial Analysis and Interpretation

Prerequisite : Finance 413. A course of study in micro-financial and macro-financial analysis. Various measures are discussed as well as their sources and interpretations. (Full course.)

NOTE : — Students who have credit for Finance 421 and/or Finance 422 may not take this course for credit.

805 - Finance 424. Financial Management

Prerequisite : Finance 413. A study of the role and responsibility of the senior financial officer in the business enterprise. A variety of case studies is used to encourage the student to develop a critical approach to the subject. (Full course.)

805 - Finance 425. Financial Research

Prerequisite : permission must be obtained from the chairman of the department. In this course the student undertakes a research project and must demonstrate his ability to do original and independent work. (Full course.)

MANAGEMENT

T. Kubicek, *Associate Professor of Management and Chairman of the Department.*

Norman C. Fletcher, *Associate Professor of Management.*

Hem C. Jain, *Associate Professor of Management.*

Norman Bedford, *Assistant Professor of Management.*

Martin Franklin, *Assistant Professor of Management.*

Robert Hosein, *Assistant Professor of Management.*

Peter E. Pitsiladis, *Assistant Professor of Management.*

Henry Tutsch, *Assistant Professor of Management.*

801 - Management 211. Commercial Law

A general survey of the law obtaining in the Province of Quebec with special emphasis on the aspects thereof relating to business and commerce. It includes a basic outline of the law of Domicile, Marriage, Persons, Property, Ownership and its modifications, Successions, Gifts and Wills, Testamentary Executors, Contracts, Quasi-Contracts, Offences and Quasi-Offences, Privileges, Hypothecs and Prescription, and a more detailed study of the Contracts of Sale, Lease and Hire of Things and of Work, Mandate, Loan, Deposit, Partnership, Suretyship, Pledge, Insurance, and an outline of the basic law applying to Negotiable Instruments, Joint Stock Companies, Bankruptcy and Winding Up, and Copyrights, Patents and Trade Marks. It is strongly recommended that Accountancy 211 be taken before attempting this course. Taxation is covered in a separate course under Accountancy 441. (Full course.)

NOTE : — Students who have credit for Commercial Law 211 may not take this course for credit.

801 - Management 421. Production Management

Prerequisites : Economics 211, Accountancy 211, Accountancy 411 or Finance 416, or Management 411, Q.M. 242 or Mathematics 441 or Statistics 242. This course is concerned with the various aspects of production management. Emphasis is placed on the problems of plant location and layout, product development and sale, materials handling, work simplification and the development of standards and controls. Class instruction methods will include the use of case studies and field trips. (Full course.)

NOTE : — Students who have credit for Administration 251 or 421 may not take this course for credit.

801 - Management 430. Organization Behaviour

Prerequisites : Psychology 211 and Sociology 211; third-year standing. This course attempts to give the student an awareness and understanding of the problems inherent in combining people and the socio-technical environment in formal organizations. Use will be made of the behavioural sciences to understanding the human element from the viewpoint of the individual, the work groups, intergroup relations and the total organization. (Full course.)

NOTE : — Students who have credit for Administration 441 or 430 may not take this course for credit.

801 - Management 432. Personnel Management

Prerequisite : Management 430 or Administration 430. This course deals with the personnel problems faced by all administrators in selecting, training, developing, motivating and assessing the performance of individuals within the interpersonal framework of organizations. The student will be exposed to the behavioral science literature which attempts to improve the task of utilizing human resources effectively. (Full course.)

NOTE : — Students who have credit for Administration 431 or 432 may not take this course for credit.

801 - Management 433. Labour Relations

Prerequisite : Management 430 or Administration 430. The rise of unionism as an institution, collective bargaining, the effects of bargaining on the worker and management, labour legislation and future developments affecting the labour organization and management. (Full course.)

NOTE : — Students who have credit for Industrial Relations 411 or 412 or Administration 433 may not take this course for credit.

801 - Management 451. Social Aspects of Enterprise

Prerequisite : third-year standing in any faculty. The social and economic impact of the large corporation upon the community. Social responsibility of business, labour and government is considered as well as other future issues in the corporate society such as automation, leisure time and economic planning. (Full course.)

NOTE : — Students who have credit for Administration 451 may not take this course for credit.

801 - Management 452. Management Theory

Prerequisite : Management 430 or Administration 430. This course attempts to promote understanding of management principles and to further the acceptance of management theory as an underlying discipline of professional managers. To this end the student will survey the existing management literature and become familiar with key authors, their works and conclusions. Various management concepts will be examined and an attempt will be made to appraise their value in terms of their application to the actual practice of business. (Full course.)

NOTE : — This course is intended for students majoring in Management. Students who have credit for Administration 452 may not take this course for credit.

801 - Management 453. Business Policy

Prerequisites : Finance 413, Marketing 421, Management 421, 430 and Quantitative Methods 411 or equivalent. A terminal course designed to integrate the learning of the four-year programme. The emphasis will be on the administration of the organization through policy decisions as made by senior management. The student will be expected to demonstrate facility in analysis of business problems, in formulation of appropriate policies and in implementation of decision making. (Full course.)

NOTE : — Students who have credit for Administration 453 may not take this course for credit.

MARKETING

Bruce Mallen, *Professor of Marketing and Chairman of the Department.*
Harold Shaffer, *Assistant Professor of Marketing and Director of the School of Retailing.*

Paul R. Crocker, *Assistant Professor of Marketing.*
Ronald H. Rotenberg, *Lecturer in Marketing.*

808 - Marketing 421. Marketing (Introductory)

Prerequisites : Economics 211, Accountancy 211, Psychology 211 and Sociology 211. This course is designed to give the student a basic understanding of the marketing function and its role in the economic system. (Full course.)

NOTE : — Students who have credit for Marketing 211 and/or Marketing 411 may not take this course for credit.

Students should have completed a course in Statistics before taking this course.

808 - Marketing 431. Advertising and Sales Promotion

Prerequisite : Marketing 421. Advertising and sales promotion theory and practice. The objective is to give the student a broad perspective regarding the use of advertising and sales promotion. (Full course.)

NOTE : — Students who have credit for Marketing 221 and/or Marketing 222 may not take this course for credit.

808 - Marketing 441. Marketing Channels and Institutions

Prerequisite : Marketing 421. The course deals with the functions of the marketing channel and the various institutions which perform these functions. The problems of channel selection and channel administration are discussed, together with the roles of the industrial distributor, wholesaler, agent and retailer in the economic system. (Full course.)

NOTE : — This course is intended only for students majoring in Marketing.

808 - Marketing 451. Marketing Research

Prerequisite : Marketing 421. This course is designed to acquaint the student with the use of marketing research as an aid to management. This is a comprehensive survey of the scope and methods of marketing research. This course will include an introduction to scientific method and show the contributions of behavioral, managerial and mathematical sciences to marketing research. (Full course.)

NOTE : — Students who have credit for Marketing 412 may not take this course for credit.

808 - Marketing 461. Sales Management

Prerequisite : Marketing 421. The purpose of this course is to acquaint the student with the problems involved in the management of personal selling. The determination of the amount and allocation of personal sales effort to be applied to the market and the methods of organizing, evaluating and controlling this effort are discussed. Included in this course are such subjects as motivation, training, recruiting, selection, compensation, and supervision as applied to the sales force. (Full course.)

NOTE : — Students who have credit for Marketing 414 may not take this course for credit.

808 - Marketing 471. Retail Merchandising Techniques

Prerequisite : Marketing 421 to be taken previously or concurrently. This course is designed for students who expect to enter any marketing career. Study of the internal merchandise mechanism of various retail organizations through a detailed examination of the elements involved in sales, mark-ups, pricing, mark-downs; the function of cost and retail inventory valuations; the concept of stock turn; planning and control of sales, stocks, merchandise purchasing; model stock planning, expense planning and control. Problems illustrate how theory can be applied to in-store situations. (Full course.)

NOTE : — The instructor will only permit those having sufficient store experience to take this course for credit. Students who have previously taken Marketing 413 will not be permitted to count this half credit toward their degree.

808 - Marketing 481. Retail Management

Prerequisites : Marketing 421, 471 and permission of the instructor. This course seeks to teach students how to cope successfully with management and administrative jobs at all retail levels. Typical retail management situations discussed through analysis of case histories. Emphasis is placed on such problems as merchandise selection and control, pricing, store policies, personnel management, operational problems of single and multi-unit retail organizations. (Full course.)

NOTE : — The instructor will only permit those having sufficient store experience to take this course. Students who have previously taken Marketing 414 will not be permitted to count this half credit toward their degree.

QUANTITATIVE METHODS

Andrew Berczi, *Assistant Professor of Quantitative Methods and Chairman of the Department.*

Jose M. Ventura, *Associate Professor of Quantitative Methods.*

Zoltan G. Popp, *Assistant Professor of Quantitative Methods.*

Roland O. Wills, *Assistant Professor of Quantitative Methods.*

Clarence Bayne, *Lecturer in Quantitative Methods.*

William Lawson, *Lecturer in Quantitative Methods.*

814 - Quantitative Methods 242. Introductory Business Statistics

Prerequisite : Mathematics 251. An introduction to statistical methods. The topics covered include : graphical and tabular presentation; scales of measurement; frequency distribution analysis; elementary probability theory; theoretical discrete and continuous distributions; sampling; point and confidence interval estimation; elementary hypothesis testing; linear regression and correlation; correlation of attributes; index numbers; time series and analysis; introduction to analysis of variance. (Full course.)

NOTE : — Students who have credit for Mathematics 241 or Statistics 242 may not take this course for credit.

**814 - Quantitative Methods 411. Managerial Operations Research
— Introductory**

Prerequisites : Mathematics 251 or 450 or 451; Quantitative Methods 242 or Statistics 242 or Mathematics 241 or 441; Economics 211, Accountancy 211. A basic introduction to operations research including principles such as goals, policy payoff, feasibility and optimality, value and decision theory; methodology, such as models and flow charts, their formulation and verification; techniques such as mathematical programming, linear and dynamic; competitive strategies and statistical and simulation methods; and applications such as inventory, allocation, scheduling, queueing and replacement. (Full course.)

NOTE : — Students who have credit for Quantitative Analysis 411 may not take this course for credit.

814 - Quantitative Methods 412. Managerial Operations Research**— Advanced**

Prerequisite : Quantitative Methods 411. This course is an extension of Quantitative Methods 411. It aims to give the student a greater depth and understanding of Operations Research concepts, techniques and applications. Various mathematical methods (e.g. Matrix operations) are studied, also Critical Path, Pert Techniques and Non-linear programming. Information Theory, and various other O.R. tools are explored. The scope and limitations of O.R. are examined and the organization of O.R. work is discussed. The emphasis is on the development of the quantitative problem-solving ability of the student with special regard to practical applications in Finance, Marketing, Production and Administration. (Full course.)

814 - Quantitative Methods 421. Computers and Data Processing

Prerequisites : Accountancy 411 or Finance 416 or Management 411; Quantitative Methods 411 previously or concurrently or Quantitative Analysis 411 previously. The development of the modern digital computer; basic electronic computer concepts; principles and characteristics of current equipment and programming techniques (Hardware and Software); scopes and limitations of computerization; techniques of business systems analysis and design, flow charts, logic diagrams, the importance of "standard"-s; a survey of various computer languages; problem definition and description in the two generalized programming languages; FORTRAN (Formula Translation) and COBOL (Common Business Oriented Language); various business applications — both in accounting and control — examined, analysed and exercised. (Full course.)

NOTE : — Emphasis is placed on the digital computer as a general purpose device for storing, retrieving, processing and transmitting information in addition to its role as an arithmetic calculator. Students who have credit for Computer Science 211, 212, 471, Mathematics 471 may not take this course for credit.

814 - Quantitative Methods 422. Business Systems Analysis

Prerequisites : Quantitative Methods 411; 421 or equivalent. This is an introductory course in Systems Theory. It will study the various characteristics and nature of systems. System components and input-output relationships will be analysed; total and partial systems will be evaluated and simulation methodology will be explored. Special emphasis will be given to business applications of cybernetics with reference to computer based Management Systems and Information Processing in business. (Full course.)

814 - Quantitative Methods 442. Advanced Business Statistics

Prerequisite : Quantitative Methods 242 or Statistics 242 or Mathematics 441; Economics 211, Accountancy 211. Simple and multistage sample and survey design; Design of Experiments. Non-linear, multiple and partial regression and correlation analysis. Exponential smoothing and advanced time series analysis, Statistical quality control. Non-parametric methods. The emphasis in this is on practical business applications; it is expected that the students acquire a good working knowledge of these techniques through extensive use of the statistical laboratory facilities. (Full course.)

MATHEMATICS

502 - Mathematics 251. Fundamental Mathematics

This course is intended primarily for Commerce students, and includes selected topics from Algebra and Calculus as follows: sets; relations and functions and their graphs; straight line and circle; exponential and logarithmic functions; progressions; elementary theory of equations; inequalities; permutations, combinations and binomial theorem; limits and continuity; differentiation of rational, exponential, and logarithmic functions and applications; integration with applications. Lectures and practice period. (Full course.)

NOTE: — Students who do not have a good understanding of high-school Mathematics should take Mathematics 201 before attempting Mathematics 251. Those interested in a full course in Calculus should follow the requirements outlined in this Announcement.

502 - Mathematics 415. Topics in Calculus

Prerequisite: Mathematics 251. This course replaces Mathematics 450. This course is intended primarily for Commerce students and includes selected topics from Trigonometry, Analytic Geometry, Differential and Integral Calculus of one and several variables. (Full course.)

NOTE: — Mathematics 251 and 415 are under the Mathematics department and are included in this section only for information purposes.

COMPUTER SCIENCE

Courses in Computer Science are offered in the Faculty of Engineering and are available as electives to Commerce students.

ADDITIONAL COURSES OF STUDY

The following courses are offered to meet the needs of various business organizations. They do not carry credit towards the Bachelor of Commerce degree.

Students must consult the time-table to determine which of the following courses are offered in the current academic year.

813 - Business 221 (non-credit). Office Management

A course in the principles of office management, including such topics as the function of the office in business; organization and principles of control; office systems and routines; office equipment and labour-saving devices; office planning and layouts; selection and training of office personnel; office communications. (Full course.)

NOTE: — This course was previously designated as Administration 221. Students who have taken Administration 221 should not take this course.

813 - Business 222 (non-credit). Procurement Principles

This course is designed to cover the fundamentals of purchasing policies and procedures and the organization and functions of the purchasing department in business and industry. Topics covered will include pricing, negotiation, quality and quantity determination, budgetary institutions, etc., as well as the relationship between purchasing and other management functions. Class discussion and case studies are the basic method of study employed. (Full course.)

NOTE: — This course was previously designated as Administration 442 and 443. Students who have taken Administration 442 and/or 443 should not take this course.

813 - Business 223 (non-credit). Business Systems

This course is designed primarily for students with practical business experience, managers, and potential systems men. It provides a *panoramic* view of the systems tools, techniques and equipment and relates them to practical situations arising in an enterprise in this age of change. Topics covered include: translation of management objectives into business systems, procedures and methods; organization planning; fact finding and related tools such as flow charting, work measurement, information requirement studies; selling, implementation and management of system and organization changes including planning, presentation and documentation tools such as critical path scheduling, decision table construction, procedure writing, project control techniques; information gathering, processing, distribution and retention equipment from simple office machines to computers. (Full course.)

NOTE: — This course was previously designated as Executive Training 441 and 442. Students who have taken Executive Training 441 and/or 442 should not take this course.

813 - Business 251 (non-credit). Transportation and Traffic (Introductory)

This course in freight traffic management is primarily for students who wish to specialize in this line of endeavour. It covers the practical aspects of transportation in Canada including such matters as bills of lading and shipping procedures; special services of railways; express; claims and claims preventions; freight contracts; marine insurance; customs; interpretation of the railway act and railway law. (Full course.)

NOTE: — This course was previously designated as Marketing 251. Students who have taken Marketing 251 should not take this course.

813 - Business 252 (non-credit). Transportation and Traffic (Advanced)

Prerequisite: Business 251. This course in freight traffic management is primarily for students who wish to specialize in this line of endeavour. It covers the practical aspects of transportation in Canada including such matters as tariff construction and freight rate structures; condition of carriage; ocean freight contracts; marine insurance; customs; interpretation of the railway act and railway law. (Full course.)

NOTE: — This course was previously designated as Marketing 252. Students who have taken Marketing 252 should not take this course.

813 - Business 260 (non-credit). Basic Mathematics for Business

Review of elementary algebraic operations; fractions, ratios, proportions, percentages, simple equations, arithmetic and geometric progressions, logarithms; graphical algebra; simple and compound interest; annuities, amortization and sinking funds, depreciation and bond values; simple business statistics including: the collection of statistical data, various methods of presentation including tables and graphs, the frequency distribution and its mathematical analysis including averages, measures of dispersion, measures of skewness, normal curve, and correlation. (Full course.)

SPECIAL CERTIFICATE PROGRAMMES

There are many organizations within the business community designed to serve the needs of people working in specialized areas of business. These organizations recognize that the educational qualifications of those seeking membership must be continually upgraded. Therefore, they sponsor an Academic Certificate which may be obtained through correspondence courses or through a lecture programme.

The Faculty of Commerce co-operates with these business organizations by permitting personnel to register as partial students, and to take courses leading to a Certificate to be awarded by the organization concerned.

Students must comply with the University regulations regarding dates of application and partial student entrance requirements as outlined in the University Announcement. In addition to this, they must meet the requirements of the specific organization.

The credit courses taken may be applied towards the Bachelor of Commerce degree provided the student meets the admission requirements and wishes to transfer from partial status to undergraduate status after completing a Certificate programme. Students are advised that they must meet the Bachelor of Commerce curriculum requirements in force at the date of transfer.

Each Certificate programme has one or more special courses required to complete the programme. *These courses do not carry credit toward a Bachelor's degree and are designated as Non-Credit courses.*

Students interested in the following Certificate programmes should obtain details from the organization concerned or the Commerce Faculty office :

1. A.M.S. — The Administrative Management Society (Montreal Chapter) Inc.
2. M.P.A. — The Montreal Personnel Association.
3. A.M.A. — The American Marketing Association (Montreal Chapter).*
4. C.A.P.A. — The Canadian Association of Purchasing Agents (Montreal Division).
5. D.P.M.A. — Data Processing Management Association (Montreal Chapter).

* Formerly the Marketing Association of Canada (M.A.C.).

COURSES REQUIRED

A.M.S.	M.P.A.	A.M.A.	C.A.P.A.	D.P.M.A.
Accty. 211 Econ. 211 Eng. 211 Mgt. 211 Psych. 211 Mgt. 432* Fin. 413* Mktg. 421* French 211* NC Bus. 221 NC Bus. 223* NC Bus. 260*	Econ. 211 Econ. 271 Sociol. 211 Psych. 211 Mgt. 430 Mgt. 432 Mgt. 433 Mktg. 451 Mktg. 461 NC Bus. 260	Accty. 211 Econ. 211 Sociol. 211 Psych. 211 Mktg. 421 Mktg. 431 Mktg. 451 Mktg. 461 Chem. 211 or Physics 211 NC Bus. 222 NC Bus. 260	Accty. 211 Econ. 211 Mgt. 211 Psych. 211 Chem. 211 Physics 211 NC Bus. 222 NC Bus. 260	Accty. 211 Accty. 451† Mgt. 421 Fin. 416 Maths. 251 Q.M. 242 Q.M. 411 Q.M. 421 NC Bus. 223 NC Bus. 260
Required 6 * Electives any 4	8	9	7	9½
TOTAL 10	8	9	7	9½

†Half-course

The following organizations co-operate in offering courses as continuing education :

1. The Canadian Industrial Traffic League, (Quebec Division) : Business 251 (non-credit). Transportation and Traffic (Introductory).
Business 252 (non-credit). Transportation and Traffic (Advanced).
2. The Systems and Procedures Association of America, (Montreal Chapter) : Business 223 (non-credit). Business Systems.

The following organizations suggest that students take certain courses at this University as preparation for their uniform final examinations :

1. The Society of Industrial and Cost Accountants of Quebec.
2. Association of Certified General Accountants (Quebec Division).
3. Association of Chartered Institute of Secretaries (Quebec Division).

IX

Faculty of Engineering

ADMISSION TO UNDERGRADUATE STANDING IN ENGINEERING

Admission to First Year

Students must present satisfactory proof of graduation from high school with an average of at least 60% on ten academic papers on the Quebec High School Leaving examinations, or the equivalent, including papers in English Literature and Composition, Algebra, Geometry, and at least one Science. Students are also eligible to enter first-year Engineering under "Early Final Admission" regulations as outlined in Section IV.

Admission directly to Second Year

A student presenting a Quebec Senior High School Leaving Certificate or equivalent, including English Literature and Composition, Physics, Chemistry, and at least Intermediate Algebra, Analytic Geometry, and Trigonometry (on either Junior or Senior Matriculation Certificates), will be considered for admission to second year. (Preference will be given to candidates who have completed Grade XII Calculus.)

Students admitted in this manner will take Engineering 212 in second year, in lieu of English Composition, from which they will already have received exemption.

Admission as a Partial Student in the Evening Division

Evening Division courses in the Faculty of Engineering are normally taken as part of the undergraduate programme leading to the Certificate in Engineering, or to the Bachelor of Engineering. However, suitably qualified applicants interested in single courses are encouraged to register for such courses in the Evening Division. This may be particularly suitable for individuals preparing to write the examinations of the Corporation of Engineers of Quebec or intending to apply for admission to the Master of Engineering programme at Sir George Williams University.

The University reserves the right of decision on the applicant's eligibility for each individual course. Priority will be given to students registered as undergraduates in the Certificate or Degree programmes.

Course Load

Day Division students will take the courses of each year as indicated in the tables which follow.

Evening Division students in first year will take no more than three courses each calendar year. The second-year programme may be taken over two calendar years, the third-year programme over either two or three calendar years. The particular patterns of courses to be taken in each of the calendar years are listed in the University timetable.

Students wishing to work at a slower pace should plan their programmes carefully, with guidance from the Dean of the Faculty or his delegate, since some courses are not offered every year.

It is worth noting that each lecture hour is expected to require about two additional hours of "outside" work, and most laboratory hours about one half-hour of "outside" work.

Failures

A student in Engineering who fails more than two full courses has failed the year and must repeat it (if permitted to do so) for credit.

Supplemental Examinations

A student in Engineering may write supplemental examinations in not more than two full courses, and not more than three papers, each year.

CURRICULUM FOR THE DEGREE OF BACHELOR OF ENGINEERING

The University offers a five-year programme leading to the degree of Bachelor of Engineering in the fields of Civil, Electrical, and Mechanical Engineering. The curriculum is based on a uniform pattern of courses for all students in the first three years, followed by two years of specialized work in the particular professional field chosen by the student.

A special feature of the programme is the early introduction of a "physical systems approach" as a unifying theme, concurrent with a related sequence of laboratory courses designed to emphasize a concern for the problems of measurement and associated instrumentation. Students may elect to follow course sequences designed to provide modern education in the traditional engineering disciplines, or they may elect to concentrate on systems engineering in considerable depth.

The first three years of this programme are offered in both Day and Evening Divisions, whereas the final two years are available in the Day Division only. Evening students are eligible to transfer to the Day Division upon completion of any of the three full academic years.

Successful completion of the degree programme in Engineering requires hard work and considerable dedication on the part of each student. The curriculum is designed with the expectation of about two hours of "outside" work for each lecture hour, on average. Most laboratory courses will normally require about one half-hour of "outside" work for each hour spent in the laboratory.

Membership in the Corporation of Engineers of Quebec

The Corporation of Engineers of Quebec, at its council meeting of May 24, 1967, has fully accredited the curricula in Civil, Electrical and Mechanical Engineering offered by Sir George Williams University. The Corporation will admit as members graduates of these three programmes according to clause 17 of the Engineers Act and clauses 3A and 3B of the Corporation's By-Laws.

French Language Requirement

All Engineering students are required to pass a French language examination at some time following first year Engineering and prior to graduation. Examinations will be held in the Fall and Spring terms of each year. It is suggested that French 211 be taken as the third-year optional course by students who do not have sufficient background in the French language. Foreign students attending the University on a student visa will be exempt from this requirement on request.

Certificate of Engineering

Evening Division students who have satisfactorily completed the first three academic years, will be granted the Certificate in Engineering upon application to the Registrar. They may continue their studies toward the Bachelor of Engineering degree by transfer to the Day Division, or if they wish, they may be admitted to the Faculty of Science, and continue their studies in the Evening Division to earn the Bachelor of Science Degree. This will normally require a further five-course academic year.

NOTE : — Time distribution for courses shown below is intended as a guide to Day Division students.

First Year Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Chem 211	General Chemistry.....	3	2	3	2
*Math 293	Calculus I.....	3	0	3	0
*Math 294	Algebra & Vectors.....	3	0	3	0
Phys 211	General Physics.....	3	2	3	2
Engin 212	Engineering Graphics.....	2	2	2	2
**English 222 or 221 or French 221, 222 or 231	Literature.....	3	0	3	0
		17	6	17	6

*A student who has not completed high-school Trigonometry and/or Intermediate Algebra may be allowed (with permission of an Engineering advisor) to take Mathematics 202 and/or 203 as an additional course concurrently with the regular first-year Mathematics.

**A student whose secondary education has been completed in another language may substitute an optional course in the Faculty of Arts.

A student whose knowledge of the English language is judged to be inadequate will be required to register for English 200 as a first-year course. Literature, for such a student, will then be considered a second-year requirement.

Second Year Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
**Math 291	Analytic Geometry & Vector Analysis..	3	0	3	0
**Math 292	Calculus.....	3	0	3	0
Phys 291	Sound and Light.....	3	2	—	—
Phys 293	Electricity and Magnetism.....	—	—	3	3
Engin 214	Digital Computer Programming.....	2	2	—	—
Engin 221	Materials Science.....	3	3	3	3
Engin 241	Statics.....	—	—	3	0
*English 211	College Composition.....	3	0	3	0
		17	7	18	6

*A student whose native language is not English may satisfy the College Composition requirement by satisfactorily completing English 200 or English 201. See note under "First Year Engineering".

**Math 291 to be replaced by Math 295, Calculus II; Math 292 to be replaced by Math 296, Linear Algebra, in 1969-70.

Third Year Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Math 392	Differential Equations.....	2	0	2	0
Math 393	Advanced Calculus.....	3	0	3	0
Phys 391	Modern Physics.....	—	—	2	0
Engin 341	Dynamics.....	3	0	—	—
Engin 343	Mechanics of Materials I.....	—	—	3	3
Engin 350	Thermodynamics I.....	3	0	—	—
Engin 351	Fluid Mechanics I.....	—	—	3	0
Engin 372	Physical Systems & Measurements.....	3	3	3	3
*	Elective.....	3	0	3	0
		17	3	19	6

* One full course taken in any faculty, excluding courses required in Engineering curriculum.

Fourth Year Civil Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Engin 441	Mechanics of Materials II.....	3	0	—	—
Engin 451	Fluid Mechanics II.....	3	1.5*	—	—
Engin 471	Physical Systems & Measurements II.....	3	3	—	—
Engin 491	Mathematical Methods in Engineering.....	3	0	3	0
Civ Eng 421	Engineering Materials.....	2	3	2	3
Civ Eng 431	Geology.....	—	—	2	1.5*
Civ Eng 451	Theory of Structures I.....	3	0	3	0
Civ Eng 452	Structural Design I.....	—	—	2	3
Civ Eng 461	Hydrology.....	—	—	3	1.5*
Civ Eng 471	Surveying I.....	x	x	—	—
Civ Eng 472	Highway Engineering I.....	—	—	3	1.5*
		17	7.5	18	10.5

x Surveying I is a Summer School taken prior to start of Fall term.

* 3 hours per week, alternate weeks.

Fifth Year Civil Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Engin 501	Engineering Economy & Practice.....	3	0	3	0
Engin 510	Technical Report.....	x	x	—	—
Civ Eng 531	Soil Mechanics I.....	3	3	—	—
Civ Eng 532	Foundations.....	—	—	3	1.5*
Civ Eng 551	Structural Design II.....	0	6	—	—
Civ Eng 552	Reinforced Concrete.....	2	3	2	3
Civ Eng 561	Hydraulic Engineering I.....	3	0	—	—
Civ Eng 562	Water Resources.....	—	—	2	0
Civ Eng 571	Highway Engineering II.....	3	0	—	—
Civ Eng 581	Public Health Engineering.....	3	1.5*	3	0
**	Technical Electives.....	—	—	**	**
		17	13.5		

**TECHNICAL ELECTIVES

(Second Term)

Two courses chosen from:

Engin 512	Operations Research.....	3	1.5
Civ Eng 533	Soil Mechanics II.....	3	0
Civ Eng 541	Experimental Stress Analysis.....	2	3
Civ Eng 553	Theory of Structures II.....	3	0
Civ Eng 563	Hydraulic Engineering II.....	3	0
Mech Eng 421	Metallurgy.....	3	1.5
Mech Eng 451	Thermodynamics II.....	3	0
Mech Eng 453	Heat Transfer I.....	3	0

x Report submitted by first Monday after Fall classes start.

* 3 hours per week, alternate weeks.

Fourth Year Electrical Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Engin 471	Physical Systems & Measurements II.....	3	3	—	—
Engin 472	Control Theory I.....	—	—	3	3
Engin 491	Mathematical Methods in Engineering.....	3	0	3	0
Engin 492	Advanced Mathematics.....	2	0	—	—
Engin 501	Engineering Economy & Practice.....	3	0	3	0
Elec Eng 421	Electronics I.....	3	3	—	—
Elec Eng 422	Electronics II.....	—	—	3	3
Elec Eng 431	Electromechanics I.....	3	3	—	—
Elec Eng 441	Network Analysis.....	—	—	3	0
**	Technical Elective.....	—	—	3	1.5*
		17	9	18	7.5
**TECHNICAL ELECTIVES					
One course chosen from:					
Elec Eng 432	Electromechanics II.....	3	1.5*		
Elec Eng 451	Electromagnetic Field Theory.....	3	1.5*		

* 3 hours per week, alternate weeks.

Fifth Year Electrical Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Engin 502	Engineers and Society.....	3	0	3	0
Engin 510	Technical Report.....	x	x	—	—
Elec Eng 501	Seminar.....	—	—	0	2
Elec Eng 511	Electrical Properties of Matter.....	3	0	—	—
Elec Eng 521	Electronics III.....	3	3	—	—
Elec Eng 561	Communication Theory.....	3	3	—	—
Elec Eng 581	Electrical Engin Design Project.....	—	—	0	6
**	Technical Electives.....	**	**	**	**

**TECHNICAL ELECTIVES

First Term

Two courses chosen from:

Engin 441	Mechanics of Materials II.....	3	0	—	—
Engin 511	Computer Organization & Software.....	3	1.5	—	—
Engin 571	Control Theory II.....	3	1.5*	—	—
Elec Eng 532	Generalized Machine Theory.....	3	1.5*	—	—
Elec Eng 551	Electromagnetic Wave Propagation.....	3	1.5*	—	—

Second Term

Four courses chosen from:

Engin 512	Operations Research.....	3	1.5	—	—
Engin 572	Control System Design.....	3	1.5*	—	—
Engin 573	Advanced System Theory.....	3	1.5*	—	—
Engin 575	Digital Computers in Systems.....	3	1.5*	—	—
Elec Eng 432	Electromechanics II.....	3	1.5*	—	—
Elec Eng 451	Electromagnetic Field Theory.....	3	1.5*	—	—
Elec Eng 552	Microwave Design.....	3	1.5*	—	—
Elec Eng 562	Statistical Communication Theory.....	3	1.5*	—	—
Elec Eng 571	Electrical Power Systems.....	3	1.5*	—	—

x Report submitted by first Monday after Fall classes start.

* 3 hours per week, alternate weeks.

Fourth Year Mechanical Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Engin 441	Mechanics of Materials II.....	3	0	—	—
Engin 451	Fluid Mechanics II.....	3	1.5*	—	—
Engin 471	Physical Systems & Measurements II.....	3	3	—	—
Engin 472	Control Theory I.....	—	—	3	3
Engin 491	Mathematical Methods in Engineering.....	3	0	3	0
Engin 492	Advanced Mathematics.....	2	0	—	—
Elec Eng 431	Electromechanics I.....	3	3	—	—
Mech Eng 412	Mechanical Engineering Lab I.....	—	—	0	3
Mech Eng 421	Metallurgy.....	—	—	3	1.5
Mech Eng 443	Kinematics of Machines.....	2	2	—	—
Mech Eng 444	Dynamics of Machines.....	—	—	3	3
Mech Eng 451	Thermodynamics II.....	—	—	3	0
Mech Eng 453	Heat Transfer I.....	—	—	3	0
		19	9.5	18	10.5

* 3 hours per week, alternate weeks.

Fifth Year Mechanical Engineering

		1st Term		2nd Term	
		Lec Hrs	Lab Hrs	Lec Hrs	Lab Hrs
Engin 501	Engineering Economy & Practice.....	3	0	3	0
Engin 510	Technical Report.....	x	x	—	—
Mech Eng 511	Mechanical Engineering Lab II.....	0	3	0	3
Mech Eng 541	Machine Design I.....	3	3	—	—
Mech Eng 542	Machine Design II.....	—	—	3	3
Mech Eng 551	Gas Dynamics.....	3	0	—	—
Mech Eng 552	Heat Transfer II.....	3	0	—	—
Mech Eng 553	Fluid Machinery.....	—	—	3	0
**	Technical Electives.....	**	**	**	**

**TECHNICAL ELECTIVES

First Term

Two courses chosen from:

Engin 511	Computer Organization & Software.....	3	1.5	—	—
Engin 571	Control Theory II.....	3	1.5*	—	—
†Civ Eng 421	Engineering Materials.....	2	3	—	—
†Civ Eng 451	Theory of Structures I.....	3	0	—	—
Elec Eng 421	Electronics I.....	3	3	—	—
Mech Eng 521	Manufacturing Processes.....	3	0	—	—
Mech Eng 554	Environmental Control.....	3	0	—	—
Mech Eng 556	Statistical Thermodynamics.....	3	0	—	—

Second Term

Three courses chosen from:

Engin 512	Operations Research.....	3	1.5		
Engin 572	Control System Design.....	3	1.5*		
Engin 573	Advanced System Theory.....	3	1.5*		
Engin 575	Digital Computers in Systems.....	3	1.5*		
†Civ Eng 421	Engineering Materials.....	2	3		
†Civ Eng 451	Theory of Structures I.....	3	0		
†Civ Eng 452	Structural Design I.....	2	3		
Civ Eng 541	Experimental Stress Analysis.....	2	3		
Elec Eng 422	Electronics II.....	3	3		
Elec Eng 432	Electromechanics II.....	3	1.5*		
Mech Eng 543	Vibration Analysis.....	3	0		
Mech Eng 555	Energy Conversion.....	3	0		

x Report submitted by first Monday after Fall classes start.

* 3 hours per week, alternate weeks.

† Civ Eng 421, 451 and 452 may not be taken separately, but must be taken as a group in both terms.

FACULTY OF ENGINEERING

Jack Bordan, *Dean*.
 Norman Jennings, *Assistant Dean*.
 F. A. Gerard, *Professor of Engineering*.
 J. Clair Callaghan, *Associate Professor of Engineering*.
 Thomas W. Clewes, *Associate Professor of Engineering*.
 Matthew McC. Douglass, *Associate Professor of Engineering*.
 M. P. du Plessis, *Associate Professor of Engineering*.
 F. Douglas Hamblin, *Associate Professor of Engineering*.
 James F. Lindsay, *Associate Professor of Engineering*.
 William M. Mansour, *Associate Professor of Engineering*.
 Hugh J. McQueen, *Associate Professor of Engineering*.
 M. S. Troitsky, *Associate Professor of Engineering*.
 Mete Yalcin, *Associate Professor of Engineering*.
 Paul P. Fazio, *Assistant Professor of Engineering*.
 Graham Martin, *Assistant Professor of Engineering*.
 M. O. M. Osman, *Assistant Professor of Engineering*.
 Victor R. Riley, *Assistant Professor of Engineering*.
 S. Ahmed Rizvi, *Assistant Professor of Engineering*.
 Otto Schwelb, *Assistant Professor of Engineering*.
 Albert I. Tari, *Assistant Professor of Engineering*.
 George D. Xistris, *Assistant Professor of Engineering*.

The present system of numbering Engineering courses was instituted in 1965-66. For course listings under the previous four-digit system see the 1965-66 University Announcement.

Hours listed for courses below are intended to indicate total "term-hours"; e.g., a course listed as 2 hours per week, 2 terms, may be given as 4 hours per week, 1 term.

CHEMISTRY

503 - Chemistry 211. General Chemistry — See Faculty of Science.

MATHEMATICS

502 - Mathematics 202. Trigonometry*

This course is required of all students entering Engineering who have not previously taken Trigonometry. The material covered will be adjusted to suit the needs of the student, enabling him to proceed concurrently with the regular first-year Engineering programme.

502 - Mathematics 203. Intermediate Algebra*

This course is required of all students entering Engineering who have not previously taken Intermediate Algebra. The material covered will be adjusted to suit the needs of the student, enabling him to proceed concurrently with the regular first-year programme.

* This course will be given for 2 hours a week in the first term. The course is not a part of the Engineering degree programme and will be offered subject to demand, in Day and/or Evening Division only.

502 - Mathematics 213. Algebra — See Faculty of Science.

This course is no longer offered in Engineering.

502 - Mathematics 223. Analytical Trigonometry and Geometry — See Faculty of Science.

This course is no longer offered in Engineering.

502 - Mathematics 233. Algebra and Analytical Geometry — See Faculty of Science.

This course is no longer offered in Engineering.

502 - Mathematics 291. Analytic Geometry and Vector Analysis

Elementary operations on vectors; applications to geometrical proofs; analytic geometry in space; solution of problems using vector methods; systems of linear equations, homogeneous and nonhomogeneous; determinants; elementary matrix algebra.

Lectures : 3 hours per week, 2 terms.

NOTE : — This course will be discontinued in 1969-70.

502 - Mathematics 292. Calculus

Limits; differentiation and integration of elementary functions; applications to maxima, minima, time-rates, errors and approximations; sequences, infinite series.

Lectures : 3 hours per week, 2 terms.

NOTE : — This course will be discontinued in 1969-70.

502 - Mathematics 293. Calculus I

Prerequisites : Intermediate Algebra and Trigonometry previously or concurrently. Line, circle, conic sections, polar coordinates. Differentiation and integration of algebraic, exponential and trigonometric functions with applications.

Lectures : 3 hours per week, 2 terms.

502 - Mathematics 294. Algebra and Vectors

Prerequisite : Mathematics 293 previously or concurrently. Sets, relations, functions, logic, real and complex numbers, mathematical induction, inequalities, theory of equations. Two and three dimensional vectors, scalar and vector products.

Lectures : 3 hours per week, 2 terms.

502 - Mathematics 295. Calculus II

Prerequisites : Mathematics 293, 294. 3 dimensional analytic geometry, partial differentiation, multiple integrals, vector calculus, further integration techniques, concepts from analysis.

Lectures : 3 hours per week, 2 terms.

NOTE : — This course will be offered for the first time in 1969-70.

502 - Mathematics 296. Linear Algebra

Prerequisites : Mathematics 293, 294. Vector space, linear transformations, matrices, determinants, equivalence relations on matrices, characteristic values, metric concepts, matrix functions.

Lectures : 3 hours per week, 2 terms.

NOTE : — This course will be offered for the first time in 1969-70.

502 - Mathematics 391. Advanced Calculus

Functions of more than one variable; limits; continuity; partial differentiation; multiple integrals; advanced vector analysis; the complex differential and integral calculus.

Lectures : 2 hours per week, 2 terms.

This course is no longer offered. See Mathematics 393.

502 - Mathematics 392. Differential Equations

Prerequisites : Mathematics 391 or 393 previously or concurrently. Ordinary and partial differential equations, integral transforms, Fourier series.

Lectures : 2 hours per week, 2 terms.

502 - Mathematics 393. Advanced Calculus

Prerequisite : Mathematics 292. Line and surface integrals, real and complex sequences and series, analytic functions, contour integrals, conformal mappings.

Lectures : 3 hours per week, 2 terms.

NOTE : — This course formerly offered as Mathematics 391.

PHYSICS**504 - Physics 211. General Physics — See Faculty of Science.****504 - Physics 291. Sound and Light**

Simple harmonic motion using methods of calculus; waves; Huygen's principle, interference and diffraction of sound and light; acoustics; lenses and mirrors; aberrations; the eye; illumination; polarization; origin of spectra.

Lectures : 3 hours per week, 1 term.

Laboratory : 2 hours per week, 1 term.

504 - Physics 293. Electricity and Magnetism

A study of electricity and magnetism leading to Maxwell's equations in integral form. Electric forces and fields; equipotentials and flux lines; electric flux and Gauss' Law; energy in an electric field. Conduction in vacuum and material media; semiconductors. Magnetic field of a current; magnetic flux; flux lines; energy in a magnetic field; Faraday's Law; Maxwell's equations.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

504 - Physics 391. Modern Physics

Elementary particles; atomic structure; X-rays; Compton effect; photoelectric effect; atomic spectra; Schrodinger equation; nuclear reactions.

Lectures : 2 hours per week, 1 term.

ENGINEERING — GENERAL**901 - Engineering 212. Engineering Graphics**

Introduction to draughting techniques; orthographic projection, principal and auxiliary views; problems involving points, lines, planes and solids; sections; dimensioning conventions; simple machine elements; preparation of assembly and detail drawing.

Lectures : 2 hours per week, 2 terms.

Laboratory : 2 hours per week, 2 terms.

901 - Engineering 214. Digital Computer Programming

An introductory course in Computer programming and Computer use oriented to Engineering applications. This course teaches sufficient Fortran programming to enable students to use computers in Engineering studies and subsequent work.

Lectures : 2 hours per week, 1 term.

Laboratory : 2 hours per week, 1 term.

This course formerly offered as Engineering 371.

901 - Engineering 221. Materials Science

Liquid and solid states; liquefaction, Van der Waal's equation, vapour pressure, surface tension, heat capacity. Partial vapour pressures, ideal and non-ideal solutions, distillation, boiling and freezing point laws, equilibrium constants and standard free energy tables.

Atomic and molecular structures; crystalline and amorphous structures, the mechanical, electrical, chemical, magnetic, thermal, optical properties of metals and non-metals as related to structure. Phase diagrams, order-disorder transitions. Corrosion, Selection of materials in engineering design.

Lectures : 3 hours per week, 2 terms.

Laboratory : 3 hours per week, 2 terms.

901 - Engineering 241. Statics

Static equilibrium; analysis of simple plane and space structures; friction.

Lectures : 3 hours per week, 1 term.

901 - Engineering 341. Dynamics

The mechanics of systems of particles and rigid bodies; variable rectilinear and curvilinear motion; relative motion with respect to translating and rotating axes; vibration; gyroscopic motion. Vector calculus used freely where appropriate.

Lectures : 3 hours per week, 1 term.

901 - Engineering 343. Mechanics of Materials I

Stress, strain and elasticity; analysis and design of structural and machine elements subjected to axial, torsional, and bending loads; shear and bending moment diagrams; deflections; analysis of statically indeterminate systems; combined stresses; composite beams.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

901 - Engineering 350. Thermodynamics I

Basic principles of thermodynamics and their application to various systems composed of pure substances and their homogeneous non-reactive mixtures. Simple power production and utilization cycles.

Lectures : 3 hours per week, 1 term.

901 - Engineering 351. Fluid Mechanics I

Fluid properties and flow characteristics; fluid statics, basic laws for systems and control volumes, conservation of mass, linear-momentum equations, moment-of-momentum equations, first law of thermodynamics, Bernoulli equation, kinematics of flow, dynamics of flow, dimensional analysis and similitude, characteristics of real fluid flow, flow measurement.

Lectures : 3 hours per week, 1 term.

901 - Engineering 372. Physical Systems and Measurements I

An integrated sequence of three terms (Engineering 372 and 471) containing the theory and analysis of lumped parameter linear systems and the application of these principles to problems of physical measurements. Characteristics and classification of physical systems, principles of network analysis, network representation of physical systems. Background mathematics, complete solution of simple physical systems, simulators, sinusoidal steady state excitation.

Error and statistical analysis, network theorems, cathode ray oscilloscope, potentiometer, two-terminal-pair networks, characteristics of curves, transients, periodic waveforms, A.C. and D.C. bridges (balanced and unbalanced), measurement of strain, analog computer, transformer.

Lectures : 3 hours per week, 2 terms.

Laboratory : 3 hours per week, 2 terms.

901 - Engineering 441. Mechanics of Materials II

Dynamic loading, repeated loads, stress concentrations and fatigue, connections, introduction to elastic action, energy methods, theories of failure, shear centre, unsymmetrical bending, bending of curved bars, introduction to linearized mathematical theory of elasticity, introduction to elastic stability.

Lecture : 3 hours per week, 1 term.

901 - Engineering 451. Fluid Mechanics II

Navier-Stokes equations, incompressible viscous flow, boundary layer theory, one-dimensional compressible flow, isentropic flow, normal shock, operation of nozzles and diffuser, flow through constant-area ducts with friction, differential equations for open channel flow, specific energy, gravity waves, hydraulic jump. Selected experiments in incompressible, compressible, subsonic and supersonic flow.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

901 - Engineering 471. Physical Systems and Measurements II

Lectures : A continuation of Engineering 372 : combined networks and 2 port network theory, closed loop systems, systems with distributed parameters.

Laboratory : Transducer elements, frequency response, digital instrumentation, multipliers.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

901 - Engineering 472. Control Theory I

Introduction to feedback control systems, equations and models of linear systems, time response, frequency response, transfer functions, stability criteria, compensation, components of feedback control systems.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

901 - Engineering 491. Mathematical Methods in Engineering

Theory and applications (with use of computers) of numerical analysis and statistics.

Lectures : 3 hours per week, 2 terms.

901 - Engineering 492. Advanced Mathematics

Hyperbolic functions. Further study of matrices; further study of Laplace and Fourier transforms; partial differential equations; theory of functions of complex variable.

Lectures : 2 hours per week, 1 term.

901 - Engineering 501. Engineering Economy and Practice

A brief introduction to economics and accounting practices; economy studies for decision making; interest and the time element in economy. Techniques for economy studies with possible special problems, such as critical path scheduling; engineering law; contracts; patents, etc.; professional ethics and liability.

Lectures : 3 hours per week, 2 terms.

901 - Engineering 502. Engineers and Society

Successful engineering is increasingly affecting society in ways which people may, or may not, want. This course will develop the relationship between engineering expertise and its impact on human beings and society.

Lectures : 3 hours per week, 2 terms.

901 - Engineering 510. Technical Report

Each Engineering student must submit a technical report on entering Engineering V. This paper should be from 2,000 to 5,000 words in length, on a topic drawn from the engineering experience of the student during his summer work.

If a suitable topic based on personal experience cannot be found, the student may apply to the Dean of the Faculty of Engineering for permission to write on a topic connected with engineering, scientific, or industrial work. The letter of permission must accompany the essay.

The report must be completely documented and illustrated, must be typewritten on one side only of 8½ x 11 inch white paper of good quality, and must be suitably bound. Students are referred to Kate L. Turabian, *A Manual for Writers of Term Papers, Theses and Dissertations*, for matters of style and notation. The report is to be submitted by the first Monday after Fall classes begin.

901 - Engineering 511. Computer Organization and Software

Logical basis of computer structure; machine organization and functional units; machine programming including subroutines, linkages, macros and assembly systems; compilers and operating systems.

Lectures : 3 hours per week, 1 term.

Laboratory : 1½ hours per week, 1 term.

Prerequisite : 5th-year standing.

901 - Engineering 512. Operations Research

Application of mathematical models to various industrial problems: queueing theory, game theory, linear programming, inventory theory and Monte Carlo processes.

Lectures : 3 hours per week, 1 term.

Laboratory : 1½ hours per week, 1 term.

Prerequisite : 5th-year standing.

901 - Engineering 571. Control Theory II

Advanced topics in analysis of linear systems. Statistical methods, random inputs, auto-correlation functions, optimization. Non-linear control systems, graphical and numerical methods, phase plane techniques, methods of the first harmonic, non-linear optimization.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, one term.

Prerequisite : Engineering 472.

901 - Engineering 572. Control System Design

Impedance matching. Detectors in feedback control systems, choice of detectors. Determination of characteristics of electric motors in feedback control systems. Hydraulic and pneumatic systems. Hydraulic motors. Use of electronic amplifiers, hydraulic amplifiers, gears, relays as amplifiers, modulators and demodulators in feedback control systems. Preliminary design of a complex feedback control system.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : Engineering 571.

901 - Engineering 573. Advanced System Theory

State space analysis of continuous and discrete systems, Liapunov stability, controllability, observability. Introduction to optimal control theory, Pontryagin's maximum principle, dynamic programming. Adaptive and learning control systems.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : Engineering 571.

901 - Engineering 575. Digital Computers in Systems

A study of the application of digital computers to control systems. Topics to be studied include sampled data systems; coding and data transmission; interfaces and analog-digital conversion techniques; simulation of discrete systems.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : Engineering 511.

CIVIL ENGINEERING**903 - Civil Engineering 421. Engineering Materials**

General principles, stress, fracture, rheological and fatigue behaviour of materials. Cement systems, portland cement, fresh and hardened concretes, mortar, design methods. Asphalt systems, properties and design methods. Ceramics, polymers and related materials. Selection of materials for construction. Advanced science of materials, nuclear structures, radiation effects, high performance composites.

Lectures : 2 hours per week, 2 terms.

Laboratory : 3 hours per week, 2 terms.

903 - Civil Engineering 431. Geology

Basic principles of physical and structural geology, with emphasis on topics related to Civil Engineering; study of minerals, rocks and soil types, load formation, techniques of air photo interpretations and geological maps.

Lectures : 2 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

903 - Civil Engineering 451. Theory of Structures I

Analytical and graphical analysis of statically determinate structures. Influence lines and their application to the analysis of structures subjected to moving loads. Simple space structures. Cables and suspension bridges. Approximate methods for analyzing multistory frames. Deflections of structures. Analysis of statically indeterminate structures with force or displacement methods, including superposition, slope deflection, moment distribution and column analogy. Introduction to matrix formulation.

Lectures : 3 hours per week, 2 terms.

903 - Civil Engineering 452. Structural Design I

Structural behaviour; design concepts, specifications and codes. Design of tension members, beams and compression members; project type design problems.

Lectures : 2 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

903 - Civil Engineering 461. Hydrology

Principles of hydrology and methods of analysis for engineering planning and design; hydrologic cycles, data collection and interpretation; relation to air mass movements, precipitation, evaporation, stream flow, floods, groundwater, drainage, etc.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

903 - Civil Engineering 471. Surveying I — Summer School

Elementary operations employed in engineering surveying; use, care, and adjustment of instruments; linear and angular measurements; traversing; earthwork calculations; theory of errors; horizontal and vertical curves and curve layout; slope stakes and grades; application of surveying methods to city, land and topographic surveying and introduction to advanced surveying techniques; use of digital computers in survey calculations.

Lectures and field work : 8 hours per day, 6 days per week, 3 weeks.

903 - Civil Engineering 472. Highway Engineering I

Theory of simple, reverse, compound, and spiral curves as applied to the location and design of highways; calculations of vertical curves, earthworks, haul and mass diagrams; calculations of sight distances, etc.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

903 - Civil Engineering 531. Soil Mechanics I

Introduction to properties of soil, composition, classifications, clay mineralogy. Physical properties, thixotropy, volumetric relationships, consistency. Water in soil, surface tension, groundwater wells, seepage theory. Consolidation and settlement, stress history and pore water considerations. Rheological and failure behaviour, experimental studies.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

903 - Civil Engineering 532. Foundations

Introduction to earth pressures and stress distributions in soils; bearing capacity. Stability analysis of slopes: practical design of foundations, piles, retaining walls, cofferdams. Experimental and case history studies.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

903 - Civil Engineering 533. Soil Mechanics II

Selected topics in mechanics of soil media including water flow, rheological behaviour, failure theories, and ideal materials.

Lectures : 3 hours per week, 1 term.

903 - Civil Engineering 541. Experimental Stress Analysis

A study of modern experimental methods of determining stresses and strains; mechanical, electrical and optical strain gauges, photoelasticity; brittle coatings; model analysis.

Lectures : 2 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

903 - Civil Engineering 551. Structural Design II

Comprehensive design projects: simple or continuous plate girders, bridges, multi-story steel frames. Introduction to plastic design.

Laboratory : 6 hours per week, 1 term.

903 - Civil Engineering 552. Reinforced Concrete

Study of the properties and models of behaviour of reinforced concrete and the mechanics of reinforced concrete members. Working stress and ultimate strength design. Introduction to prestressed concrete. Project type design assignments, girders, bridges, arches, pressure vessels for nuclear power.

Lectures : 2 hours per week, 2 terms.

Laboratory : 3 hours per week, 2 terms.

903 - Civil Engineering 553. Theory of Structures II

Classical and matrix methods of structural analysis; influence coefficients, transformation matrices. Matrix formulation of the force method and of the displacement method of analysis.

Lectures : 3 hours per week, 1 term.

903 - Civil Engineering 561. Hydraulic Engineering I

Introduction to the design of hydraulic structures including consideration of types and functions of dams; hydrologic design, seepage, piping, stability of earth structures. Hydrologic investigations; design of hydraulic features of hydro-electric stations.

Lectures : 3 hours per week, 1 term.

903 - Civil Engineering 562. Water Resources

Water resources history. Study and evaluation of phases of river mechanics. Application of principles of hydrology and water control to problems in erosion control, flood control, water power, irrigation, navigation and river basin planning. Economic feasibility studies in river basin planning.

Lectures : 2 hours per week, 1 term.

903 - Civil Engineering 563. Hydraulic Engineering II

Hydraulic design of spill-ways and outlet works. Design of transitions. Design of canals, flumes, siphons, tunnels, conduits, conveyance systems.

Lectures : 3 hours per week, 1 term.

903 - Civil Engineering 571. Highway Engineering II

Design controls and criteria, including traffic and highway characteristics and highway capacity; cross section element; right of way problems and access control; intersection design; principles of geometric design, drainage, etc.

Lectures : 3 hours per week, 1 term.

903 - Civil Engineering 581. Public Health Engineering

Introduction to water supply engineering including water quality control. Water quality criteria for domestic and industrial usage; sources and types of pollution and its effects on the environment. Analysis and design of distribution systems; application of chemistry and bacteriology to the design and operation of units. Sewage treatment; municipal and industrial waste disposal; design of various types of sewage treatment plants and disposal works.

Lectures : 3 hours per week, 2 terms.

Laboratory : 3 hours per week, alternate weeks, 1 term.

ELECTRICAL ENGINEERING**905 - Electrical Engineering 421. Electronics I**

Characteristics of diodes, vacuum tubes, transistors, and associated devices; application to the basic processes of rectification, amplification, oscillation, and modulation.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

905 - Electrical Engineering 422. Electronics II

A further, more detailed discussion of the topics listed in Electrical Engineering 421; practical circuits for amplifiers (Class A, B, and C); oscillators, modulators, etc.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

905 - Electrical Engineering 431. Electromechanics I

Energy in singly and doubly excited systems; electromechanical energy conversion principles; basic features of rotating machines; ideal d.c., polyphase induction, and synchronous machines.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

905 - Electrical Engineering 432. Electromechanics II

More detailed study of d.c., polyphase induction, and synchronous machines, including the effects of magnetic saturation; single-phase fractional-horsepower motors; transformers in 3-phase circuits; static rectifiers and inverters; application of thermal networks to the rating of machines.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

905 - Electrical Engineering 441. Network Analysis

Review of fundamental circuit laws, including a more detailed discussion of network topology and two-terminal-pair networks; filters; Fourier integral and continuous spectra; introduction to distributed parameter networks.

Lectures : 3 hours per week, 1 term.

905 - Electrical Engineering 451. Electromagnetic Field Theory

Maxwell equations, static fields, fields and matter, time-varying fields, electromagnetic energy and power, the sinusoidal steady state, electromagnetic fields in moving matter.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

905 - Electrical Engineering 501. Seminar

In the second term of the fifth year, students in Electrical Engineering hold meetings with faculty members. These meetings are organized to provide the student with an opportunity to exercise his ability to present and to defend his thoughts on topics of his own choice. Students will be encouraged to devote some of their discussions to such topics as continuing professional education, professional societies, organization of engineering employment, and professional ethics.

2 hours per week, 1 term.

905 - Electrical Engineering 511. Electrical Properties of Matter

Quantum mechanics, crystals, wave propagation in crystals, electronic conduction, semiconductors, superconductivity, dielectrics, magnetism.

Lectures : 3 hours per week, 1 term.

905 - Electrical Engineering 521. Electronics III

A continuation of the material of course EE 422; wave-shaping circuits and digital logic circuits.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

905 - Electrical Engineering 532. Generalized Machine Theory

Linear transformation in electric circuits analysis; power invariant transformations; primitive machines; dynamic and steady-state response of machines.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : EE 431.

905 - Electrical Engineering 551. Electromagnetic Wave Propagation

Orthogonal functions, plane wave propagation, bounded transmission systems, periodic slow-wave systems, electromechanical waves on electron beams, coupled transmission systems, optics, plasma, ferrites.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : EE 451.

905 - Electrical Engineering 552. Microwave Engineering

Circuit theory for waveguiding systems, impedance transformation and matching, passive microwave devices, resonators, microwave tubes, masers, parametric amplifiers.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : EE 551.

905 - Electrical Engineering 561. Communication Theory

Principles of amplitude, angular and pulse modulation. Components including modulators, mixers, limiters and demodulators. Representative examples of complete transmission systems. Signals in the presence of noise. Physical description of shot and thermal noise. Effect of noise on various modulation systems.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

905 - Electrical Engineering 562. Statistical Communication Theory

Stochastic processes, sampling theory, detection of signals in noise, optimum linear systems and filtering.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : EE 561.

905 - Electrical Engineering 571. Electrical Power System Engineering

Inductance, capacitance, resistance of polyphase transmission lines; current and voltage relations of transmission lines; load flow studies; symmetrical and unsymmetrical faults; power system stability.

Lectures : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : EE 431.

905 - Electrical Engineering 581. Electrical Engineering Design Project

The Electrical Engineering project provides an opportunity for each student to carry out a small design project associated with one or more of the specialist elective courses, under the supervision of a faculty member. The nature of the project selected should be such as to require study and a critical analysis of several articles in the current technical literature. When feasible the designs will be assessed in the laboratory. Each student is to present a complete report at the end of the project.

6 hours per week, 1 term.

MECHANICAL ENGINEERING

908 - Mechanical Engineering 412. Mechanical Engineering Laboratory I

Selected experiments in thermodynamics, heat transfer and other areas.
Laboratory : 3 hours per week, 1 term.

908 - Mechanical Engineering 421. Metallurgy

Phase rules and diagrams; solid system reactions and changes in micro-structure; annealing, precipitation, age-hardening and austenite-martensite transformation. Laboratory : pyrometry, metallography; alloying processes, structure and properties and heat treatment.

Lectures : 3 hours per week, 1 term.

Laboratory : 1½ hours per week, 1 term.

908 - Mechanical Engineering 443. Kinematics of Machines

Study of displacement, velocity and accelerations in mechanism of machines by graphical, vector and numerical analysis methods. Mechanisms include : linkages, gearing, cams and computing mechanisms.

Lectures : 2 hours per week, 1 term.

Laboratory : 2 hours per week, 1 term.

908 - Mechanical Engineering 444. Dynamics of Machines

Static-force and dynamic-force analysis of plane-motion and space mechanisms. Introduction to mechanical vibrations and dynamic balancing.

Lecture : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

908 - Mechanical Engineering 451. Thermodynamics II

Thermodynamic functions and equations; relationships between properties; corresponding states; reactive and non-reactive mixtures. Gas compression. Introduction to statistical thermodynamics.

Lectures : 3 hours per week, 1 term.

908 - Mechanical Engineering 453. Heat Transfer I

Review of momentum transfer. Steady and transient conduction, laminar and turbulent flow and radiation heat transfer.

Lectures : 3 hours per week, 1 term.

908 - Mechanical Engineering 511. Mechanical Engineering Laboratory II

Selected experiments in gas dynamics, heat transfer, fluid machinery and other areas.

Laboratory : 3 hours per week, 2 terms.

908 - Mechanical Engineering 521. Manufacturing Processes

Furnaces for production of ferrous and nonferrous metals; casting processes and powder metallurgy; theory of metal cutting and metal cutting operations; unconventional processing methods; metal forming operations; plastics; inspection and quality control. Introduction to machine tools design and testing machine tools. Field trips to examine industrial practices.

Lecture : 3 hours per week, 1 term.

Laboratory : 3 hours per week, alternate weeks, 1 term.

Prerequisite : 5th-year standing.

908 - Mechanical Engineering 541. Machine Design I

Fundamental theories of machine design as applied to screw-threaded members, metallic and rubber springs, solid and hollow shafts, their critical speeds, deflection and slope analysis; keys, couplings and welded and riveted joints under steady and fluctuating loading conditions.

Lecture : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

908 - Mechanical Engineering 542. Machine Design II

Fundamental theories of lubrication and design of bearings, kinematics and design of gears and gear trains, design of welded and cast machine frames, manufacturing details leading to the design of a complete simple machine.

Lecture : 3 hours per week, 1 term.

Laboratory : 3 hours per week, 1 term.

908 - Mechanical Engineering 543. Vibration Analysis

Matrix approach for multi-degrees of freedom systems; lateral, longitudinal and torsional frequencies of continuous systems; vibrations of plates and shells; introduction to non-linear mechanics.

Lectures : 3 hours per week, 1 term.

Laboratory : 1½ hours per week, 1 term.

908 - Mechanical Engineering 551. Gas Dynamics

Combined effects in one-dimensional flow, two-dimensional equation of motion, two-dimensional linearized flow, method of characteristics, oblique shocks, supersonic wing theory, transonic flow.

Lectures : 3 hours per week, 1 term.

908 - Mechanical Engineering 552. Heat Transfer II

Heat transfer with phase change and in high velocity flow; heat exchangers. Mass transfer and application of special methods to transport phenomena : numerical, irreversible thermodynamics and kinetic theory.

Lectures : 3 hours per week, 1 term.

908 - Mechanical Engineering 553. Fluid Machinery

Momentum analysis for fluid propulsion, moment of momentum and Euler turbine equations, thermodynamics of gas flow, analysis of blades and impellers, performance of incompressible and compressible turbomachinery.

Lectures : 3 hours per week, 1 term.

908 - Mechanical Engineering 554. Environmental Control

Methods of design of domestic and commercial heating, air conditioning, and refrigeration systems.

Lectures : 3 hours per week, 1 term.

Prerequisite : 5th-year standing.

908 - Mechanical Engineering 555. Energy Conversion

Elements of steam, internal combustion, nuclear and hydroelectric power plants. Design of a simplified complete system and economic considerations.

Lectures : 3 hours per week, 1 term.

Prerequisite : 5th-year standing.

908 - Mechanical Engineering 556. Statistical Thermodynamics

Microscopic study of thermodynamics and the properties of substances. Waves; statistical and quantum mechanics; thermodynamic probability; work and heat; reversible and irreversible processes; ideal gases.

Lectures : 3 hours per week, 1 term.

COMPUTER SCIENCE**930 - Computer Science 211. Introduction to Digital Computer Programming**

An introductory course in Computer Programming and computer use. Fundamentals of input, output, logical decisions, looping and arithmetic calculations are introduced with sufficient Fortran applications to enable the student to use the computer as a tool in his future courses and/or career. Lectures and laboratory. (Half course.)

930 - Computer Science 212. Computer Programming II

Prerequisite : an introductory course in Computer Programming with emphasis on Fortran. A course designed for those who wish to make computers their future career. Other languages such as auto-codes, assemblers, COBOL, ALGOL are introduced as well as some non-numerical topics such as sorting, systems controls and operating systems. Complex applications are discussed. Lectures and laboratory. (Half course.)

930 - Computer Science 410. Advanced Computer Programming

Prerequisite : Computer Science 211/212. Study of information representations and relationships. Formal description of algorithmic languages, e.g. ALGOL, and the techniques used in their compilation. Study of syntax, semantics, ambiguities, procedures, replication, iteration, and recursion. Theory of compilers. A study will be made of certain languages which can be specified in mathematical terms. These languages will be defined and their properties derived. Lectures and laboratory. (Full course.)

930 - Computer Science 411. Principles of Data Processing

Prerequisite : Computer Science 211/212. Requirements of techniques to handle large scale data processing applications; control; tree theory; decision tables; interpretation and validity of results; information retrieval. (Half course.)

930 - Computer Science 420. Introduction to Automata Theory and Theory of Computation

Prerequisites : Mathematics 431, 451, Computer Science 211/212. A study of various types of automata, such as finite, probabilistic, growing, and reproducing automata. Representation of automata by state graphs, logical nets, recursive functions and machines. Theory of computability. Analysis of continuous, finite, and infinite state machines. (Full course.)

930 - Computer Science 430. Logical Design and Switching Theory

Prerequisite : Mathematics 431. Symbolic logic and Boolean algebra for description and analysis of switching circuits; error detecting and correcting codes; storage elements defined logically; basic sequential circuits; digital design principles. (Half course.)

930 - Computer Science 471. Digital Computer Programming and Numerical Methods

Prerequisite : Mathematics 452 or 455 previously or concurrently. A course in computer programming oriented to senior students in the Sciences. This course will teach the students Fortran programming with applications in numerical analysis and advanced mathematical techniques. Lectures and laboratory. (Half course.)

NOTE : — This course was formerly offered as Mathematics 471. Only a half-credit will be given from among Computer Science 211, 471, Mathematics 471, Engineering 214, 371.

the following subjects: English, Mathematics, Chemistry, Physics, Biology, History, Geography, Economics, Political Science, Sociology, Psychology, and Statistics. The course of study is designed to provide a broad-based education, with a focus on the sciences and social sciences.

The course of study is divided into three main sections: the first section covers the basic sciences, the second section covers the social sciences, and the third section covers the humanities.

The first section of the course of study covers the basic sciences, including Chemistry, Physics, and Biology.

The second section of the course of study covers the social sciences, including History, Geography, Economics, Political Science, Sociology, Psychology, and Statistics.

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Special Programmes of Study

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SPECIAL PROGRAMMES OF STUDY

Y.M.C.A. Secretaryship Training

Young men and young women wishing to prepare themselves as Secretaries in the Canadian Y.M.C.A. may do so in the University by choosing for the Bachelor's degree the maximum possible number of courses in the Social Sciences Division and fulfilling the requirements as outlined in the "Curriculum for the Diploma in Association Science." Candidates should note that field work in a Y.M.C.A. during their academic activity is highly desirable as an experience complementary to the classroom phase of training. Suitable candidates will find such field work opportunities available under the Fellowship Training Plan of the Montreal Y.M.C.A. This plan also provides some remuneration to offset tutorial and living expenses. Applicants for the Fellowship Training Plan are directed to the Metropolitan Office of the Montreal Y.M.C.A. Those who are interested in qualifying for the Y.M.C.A. Secretaryship are directed to the following publications in pamphlet form which may be obtained from the Personnel Offices of the Montreal Y.M.C.A. or the National Council of Y.M.C.A.'s of Canada, 2160 Yonge Street, Toronto 7.

1. "Qualifications and Training for the Secretaryship of the Young Men's Christian Association."
2. "Basic Areas of Professional Competence in the Y.M.C.A. Secretaryship."

CURRICULUM FOR THE DIPLOMA IN ASSOCIATION SCIENCE

Candidates for the Diploma in Association Science must complete the curriculum for a Bachelor's degree with five credits from the 'basic areas of preparation for the Y.M.C.A. Secretaryship' as outlined below (including all of the 'required' courses). Students who hold a Bachelor's degree from another recognized university may obtain the Diploma in Association Science by completing a minimum of five credits at the University, including necessary courses in the following programme. Students must apply to the Chairman of the Department of Applied Social Science to receive this Diploma :

1. **History, Philosophy and Organization of the Y.M.C.A.**
Required : Applied Social Science 211.
2. **Christian Leadership and Interpretation**
Required : Religion 231.
Optional : Religion 213, 221, 243; Philosophy 231.

3. Administration

Required : Applied Social Science 221.
Optional : Accountancy 211; Management 430, 432.

4. Leadership and Supervision of Programme and Groups

Required : Applied Social Science 431.
Optional : Applied Social Science 241, 251; Education 221; Art 211, 221, 231, 251.

5. Guidance of Individuals

Required : Applied Social Science 451.
Optional : Applied Social Science 452; Psychology 427, 437, 438, 451, 482, 452; Sociology 442.

6. Community Organization and Relationships

Required : Applied Social Science 441.
Optional : Sociology 421, 441, 443.

SPECIAL SUMMER SESSIONS

The University of offering courses of study during the summer in the following subjects : Applied Social Science, English, French, Geography, History and Sociology.

Admission Requirements

1. For admission to a special day summer session, a regularly enrolled student must :
 - a) have the necessary prerequisites for the course to be taken;
 - b) be in good academic standing and have an overall "C" average;
 - c) be approved by the department concerned.
2. a) Other regularly enrolled students recommended by the department may be admitted if approved by the Student Request Committee of the Faculty of Arts.
 - b) The Student Request Committee may admit a student who is not approved by the department concerned, provided he is qualified under regulations 1(a) and 1(b).
3. Students will ordinarily take one or one and one-half courses. Two full credits will be the maximum allowed in any circumstances.

4. A student may register only in one special day summer session. A student may register concurrently in a special day summer session and the evening summer session, but in such cases the combined registration shall not exceed two credits. Registration for Applied Social Science is restricted to one half credit.

5. Outside students, not seeking a degree from Sir George Williams University will be treated in accordance with the above policies. Because of the widely varying backgrounds of such students, the Registrar's Office and the department concerned may, at their discretion, make exceptional arrangements for such students.

Course Duration

Applied Social Science :	16 June – 29 June (Geneva Park)
English :	9 July – 21 August
French :	2 July – 13 August
Geography :	2 July – 13 August
History :	8 July – 20 August
Sociology :	8 July – 20 August

Applications

As registration for some of the courses being offered is limited, students are requested to submit their applications as soon as possible. The departments concerned should be contacted for information on application deadline dates.

Fees

Applied Social Science :	\$ 75.00 per half course
English :	100.00 per course
French :	90.00 per course
	20.00 language laboratory
Geography :	90.00 per course
	15.00 field trips
History, Sociology :	100.00 per course
	50.00 per half course

APPLIED SOCIAL SCIENCE

*Director : John D. Jackson, Lecturer in Applied Social Science.
Richard D. McDonald, Associate Professor of Applied Social Science.*

Curriculum

Applied Social Science 431. Supervision.
Applied Social Science 441. Community Development.
Applied Social Science 451. Principles and Practices of Guidance.

ENGLISH

*Director : G. David Sheps, Assistant Professor of English.
Matthew Hodgart, Visiting Professor of English.
John Holloway, Visiting Professor of English.
Ronald Paulson, Visiting Professor of English.
Rossell Hope Robbins, Visiting Professor of English.
M. L. Rosenthal, Visiting Professor of English.
Bernice Sloté, Visiting Professor of English.*

Curriculum

English 435. Romantic English.
English 461. Modern Poetry.
English 463. English Novel.
English 467. Poetic and Critical Theory.
English 472. A – Chaucer and His Contemporaries.
B – James Joyce and Dylan Thomas.

FRENCH

*Director : Serge Losique, Associate Professor of French.
Albert Jordan, Assistant Professor of French.
Marcel Martin, Visiting Professor of French.
Pierre Parc, Assistant Professor of French.
Andre Roye, Visiting Professor of French.
Gilbert Taggart, Assistant Professor of French.*

Curriculum

French 211. Introduction to College French.
French 214. Intermediate College French.
French 221. Introduction to French Literature.
French 411. Advanced Composition and Stylistics.
French 426. Literature of the Romantic and Realist Periods.
French 461. The French Cinema.

GEOGRAPHY

Director : Morris Wood, *Lecturer in Geography*.
 Ronald Bryant, *Associate Professor of Geography*.
 Brian Slack, *Assistant Professor of Geography*.
 James Young, *Assistant Professor of Geography*.
 Bogdan Zaborski, *Visiting Professor of Geography*.

Curriculum

Geography 211. Introduction to Human Geography.
Geography 251. Economic Geography.
Geography 261. Cartography.
Geography 411. Historical and Political Geography of Europe.
Geography 421. Historical and Political Geography of the U.S.A.
Geography 431. Urban Geography.
Geography 445. Study of a Selected Region.
Geography 457. Resource Utilization and Conservation.

HISTORY

Director : Frank R. Chalk, *Assistant Professor of History*.
 Stanley Mealing, *Visiting Professor of History*.

Curriculum

History 473. Canadian Social History to 1850.

SOCIOLOGY

Director : Kurt Jonassohn, *Associate Professor of Sociology*.
 Anj Den Hollander, *Visiting Professor of Sociology*.
 René C. Fox, *Visiting Professor of Sociology*.

Curriculum

Sociology 421. Social Change.
Sociology 431. Medical Sociology.
Sociology 492. Theories and Sociology of Culture.

Preparation for Entrance to Graduate Faculties
and University Professional Schools

A student intending to transfer after graduation from Sir George Williams University to a university graduate faculty or professional school should consult the Registrar upon entrance to the University in order that his programme of study may be planned to satisfy the entrance requirements of the university he expects later to attend, as well as the requirements for the degree or diploma he seeks in the University.

It is standard practice for university graduate schools to require of applicants not only a high standard of previous academic performance but an extended amount of undergraduate specialization in the specific subject in which the advanced degree is sought, sufficient to enable the student to commence immediately upon the graduate courses. Graduates of high standing in a general university course are therefore usually required to take additional work, sometimes to the extent of a "qualifying year", before proceeding to the work for higher degrees. Graduates in an Honours course may find that they can undertake the work for higher degrees with a minimum of qualifying courses.

Preparation for Entrance to the Study of Medicine

Students preparing at Sir George Williams University for admission to the Faculty of Medicine of McGill University may take the B.A. or B.Sc. course, at least three years of either being required for admission, although the complete degree course is preferable and usually is insisted upon by the medical school.

Such students must be sure to include among their courses these four: Chemistry 211, Chemistry 221 or 421, Botany 211 and Zoology 222, Physics 211.

Students planning to study medicine at universities other than McGill should consult the Registrar of the selected university for information regarding required pre-medical courses.

Preparation for Entrance to the Study of Dentistry

Students preparing at Sir George Williams University for admission to the Faculty of Dentistry at McGill University may follow either the B.A. or B.Sc. course.

The minimum requirement for admission to the dental course is the satisfactory completion of two full years of study in a recognized university or Faculty of Arts and Science (or the equivalent thereof), including courses in the following subjects : English and Mathematics, one year of each; Physics, one year with laboratory work (Physics 211); Biology, one year of General Biology or Zoology with laboratory work (half year of Botany and half year of Zoology will be accepted, but not one year of Botany alone), (Botany 211 and Zoology 222); Chemistry, two full courses, including one full course of Organic Chemistry with laboratory work (Chemistry 211 and 221 or 421).

Students should clarify their eligibility early with the Licensing Board of the Province or State in which they intend to practice on graduation.

Preparation for the Study of Law

Students planning to enter the study of law should take the Arts degree and should note that Article 29, Section (i) of the Bylaws of the Bar of Quebec require proof that "a candidate has followed successfully a regular course in Philosophy either before or after his admission to study law". Such students are advised, therefore, to include Philosophy 211, 221, 241 among their course selections.

It should also be noted that an ability to read French easily is required for admission to the Faculty of Law at McGill University. For admission to the Faculty of Law at the University of Montreal, students require two years of university Latin and three years of Philosophy (including Logic and Ethics).

The degree of the University is approved for admission to the study of law at Osgoode Hall.

Teacher's Class I Diploma

Regulation 130 (c) and Regulation 133 of the Regulations of the Minister of Education of the Province of Quebec provide that those who hold an acceptable degree from an approved university may be admitted to a course of training leading to a Class I Certificate, or may be permitted to upgrade to Class I Diplomas if they already hold Class II Diplomas. The Protestant Central Board of Examiners has approved the Bachelors degree in Arts, Fine Arts, Science, and Commerce from Sir George Williams University for this purpose.

Teacher's Class II Diploma

A. Class II Diplomas shall be granted to teachers holding Class III Diplomas provided they have passed in ten papers of the Grade XI examinations and have obtained the Senior High School Leaving Certificate, or its equivalent, with passes in English (Composition and Literature) and four other subjects.

The courses that satisfy these requirements are English 221 and four of the following : French 211, Chemistry 211, Botany 211 and Zoology 222, Physics 210 or 211, Mathematics 213 or 223, Latin 211, History (any course) or Economics 221, German 211, Geography (any course), Natural Science 210, Spanish 211, Religion (any course).

B. Alternatively, Class II Diplomas shall be granted as per Method A, with the additional concession that one or two continuation (second year) courses in the approved subjects may be included in lieu of courses listed.

Teacher's Class II Certificate

Interim Class II Certificates shall be granted to teachers holding Temporary Permits provided they have obtained credits similar to those outlined in A or B above.

High school graduates who have passed in ten papers of the Grade XI examinations may enter the Faculty of Education of McGill University at Macdonald College in the one-year course leading to the Class II Certificate if they have successfully completed the following courses :

1. English 211, 221.
2. Four of the following subjects : Natural Science 210, Botany 211 and Zoology 222, Chemistry 211, Physics 210 or 211, French 211, Geography (any course), German 211, History (any course) or Economics 221, Latin 211, Spanish 211, Mathematics 213 or 223, Religion (any course).

As an alternative, admission to the one-year course leading to an Interim Class II Certificate may be obtained as above, with one or two continuation (second year) courses being substituted for first-year subjects. First-year English must include English 211 and English 221.

Membership in the Chemical Institute of Canada

The degree of Bachelor of Science with the major in Chemistry that is offered by Sir George Williams University is approved as satisfying the requirements for admission to membership in the Chemical Institute of Canada under bylaws 6 and 7 of the Institute. Undergraduates, who have reached the age of seventeen, are eligible for election as *Student Members* if they are following the programme leading to the degree and major outlined in this Announcement. Graduates are eligible for election as *Junior Members* provided they are obtaining further training in approved graduate courses in Chemistry or Chemical Engineering or further professional experience approved by the Institute; upon completion of such training or experience, commencing not earlier than the first of January immediately following graduation, and provided that they have reached the age of twenty-one, they may be eligible for election as *Professional Members*. Further information may be obtained from the Chairman of the Chemistry Department.

Other Specially Planned Programmes

Students wishing a programme of study different from any of those suggested are invited to discuss their plans with an officer of the University. Students whose mother tongue is other than English particularly are urged to take advantage of the special arrangements which can be made to suit their needs.

XI

Registration Procedure

REGISTRATION 1968-69

New students are eligible to register for courses provided they have fulfilled all admission requirements and have been formally notified of acceptance. The letter of acceptance will also contain the instructions for proper registration and must be presented at the time of registration.

Former students of the past academic year will receive Registration Appointment Cards with their final report of standing for the winter term, and must present both at the time of registration as well as their student identification cards.

Former students not registered for the past academic year must pick up appointment cards at the University Records Office. These are available about mid-August.

All registering students must present themselves *in person*, at the time specified on the Registration Appointment Card. Students who wish to discuss their course selections and programmes of study may also do this during the registration period.

Payment of tuition fees is included with the registration process in conjunction with the Office of the Controller.

WITHDRAWALS

Students who are forced to withdraw from a course or from the University are required to notify the Registration Office, Room 213, Norris Building, in person or in writing and give their reasons for withdrawing. Students must present their copy of the registration contract when making course withdrawals, changes or additions. Cessation of classes or notification to instructors does not constitute a formal withdrawal from the University. Final withdrawal date for first-term half courses is October 26. Final withdrawal for full-term courses and second-term half courses is January 31. Evening Summer Session course withdrawals must be effected within the first ten days of classes. For financial adjustments covering withdrawals, see Section XIV.

COURSE CHANGES OR ADDITIONS

Full courses : Changes must be effected within the first ten days of classes in September. Evening Summer Session course changes must be effected within the first week of classes.

Half courses : For the first term and second term, changes must be effected within the first ten days of classes in the appropriate term.

Note that section changes are considered course changes and will thus be assessed.

XII

Examinations and Advancement

EXAMINATIONS AND ADVANCEMENT

All students registered in the University are required to write the final examinations held at the close of each course.

Identification cards have been provided for each student and must be presented for admission to these examinations, including supplementals.

The grades awarded as the final standing in each subject for the academic year are given on the basis of :

- (1) the year's work of the student, week by week;
- (2) progress tests;
- (3) the final examinations.

The matter of satisfactory attendance and an acceptable level of expression in the English language will be given consideration in assessing the final grade for each subject. The *minimum* attendance required is 50% of the lectures in each term, although the instructor may set a higher requirement than this if he sees fit.

GRADING SYSTEM

Grades are awarded according to the following system :

- A Excellent
- B Very Good
- C Good (Average)
- D Pass
- F Fail (failed final examination — may write supplemental)
- R Fail (failed final examination plus unsatisfactory attendance and/or incomplete term work — must repeat course for credit; or failed supplemental examination)
- Inc Fail (term work incomplete)
- Abs Fail (absent from final examination)
- S Credit (late completion of term work or passed supplemental)

All grades remain permanently on the records. All grades on final examinations (including F, R, Inc, Abs whether cleared later or not) are reported on transcripts.

The grading system for Graduate Programmes is outlined in Section X.

Re-reading of Examinations

All examination papers graded "F" or "R" are carefully re-read by the instructor before final approval of the grade. However, any student may request, within two weeks of the release of grades, that his paper be re-read by a committee which includes the instructor and at least one other impartial professor. Application to have an examination paper re-read must be submitted to the Director of Examinations on a form which may be obtained from the Registrar's Office. A fee of \$10.00 must accompany the application. If the grade is raised, the fee is refundable.

REGULATIONS ARTS, SCIENCE AND COMMERCE

Failures

Definition of a Failed Year —

(Failure includes the grades F, R, Inc, and Abs)

1. A student who fails courses equivalent to more than two credits in any academic year is considered to have failed the year.
2. A student who fails courses equivalent to two credits in each of two consecutive years is considered to have failed the (second) year.

Regulations Concerning a Failed Year

1. A student who has failed a year may not write supplemental examinations or complete courses marked incomplete.
2. A student who has failed a year may not reregister, but may seek readmission.
3. A student who has failed a year may be readmitted on a final trial basis by the Dean of his faculty or the Registrar.
4. A student readmitted on a final basis must pass the next five credits for which he registers. He will not be allowed to register if he fails any course (even a half credit) during a trial year.
5. The maximum load during a trial year is five credits for a Day Division student and two credits for any Evening Division student.
6. A student who completes his trial academic year successfully, reestablishes his position as a student in good standing, and is governed by the ordinary regulations.

7. If a student who has been successfully reinstated after a trial year fails courses equivalent to more than two credits in any subsequent academic year, he may not register. He may not apply for readmission.
8. The regulations concerning a failed year became effective for all students on June 1, 1963.

Final Limit on the Number of Failures

It is recognized that the first year at university represents a transitional period for most students. We do not charge failures during the first year (*as defined below*) against the maximum permitted total. Failures during the first year are, however, subject to all other regulations.

A student is considered to be in his first academic year until he has *registered for* his fifth credit, either here or at some other institution.

1. After the session in which a student has registered for his fifth credit, he may accumulate no more than five failures (whether cleared by supplemental examination or not) during the remainder of his programme. A student who exceeds this limit will not be allowed to reregister. He may not apply for readmission. (Failure in a supplemental examination is not counted under this regulation. Failure in a repeated course is counted.)
2. This regulation applies to all students who have not successfully completed first year by June 1, 1963; and to all students subsequently admitted. Students in second year (or higher) by June 1, 1963, are not subject to this regulation. Such students will continue to come under the regulation now in effect: — after completion of his first five courses, no student may take more than twenty-two courses to meet the requirements for a degree.

Supplemental Examinations

1. A student who has failed a year may not write supplemental examinations in courses taken during that year.
2. A student may not write a supplemental examination in a repeated course, nor may he write a second supplemental examination in the same course.
3. After completion of his first year (first year includes the session during which he *registers for* his fifth credit, either here or at another institution), a student may write supplemental examinations for a maximum of three credits during the remainder of his programme.

4. A student may write supplemental examinations for a maximum of two credits in his first year. These are not charged against the allowable maximum stated above.
5. "To write" a supplemental examination is interpreted as "to attempt to pass" it. A student who writes supplemental examinations in courses equivalent to three credits has used up his allowance, whether he passes the examinations or not.
6. If a student applies for permission to write a supplemental examination and the permission is granted, he is presumed to have written. Absence from such a supplemental examination is counted as a failure and is charged against the permissible maximum.
7. Medical reasons (certified by a physician on the form provided by the University) comprise a valid excuse for exemption from most of the regulations concerning supplemental examinations.
 - a) A student absent from a regular examination for medical reasons may, if he wishes, write a supplemental examination. If he passes he will receive a letter grade and will not be charged with a failure nor a supplemental under the maximum permissible allowances. If he fails he will be charged with both a failure and a supplemental.
 - b) A student absent from a supplemental examination for medical reasons is not considered to have failed the examination.
8. Supplemental examinations in courses taken during the regular session must be written not later than the following July. Supplemental examinations in courses taken during the Summer Session must be written not later than the following December.
9. Supplemental examinations may be written only at one of the following external examination centres in Canada: St. John's, Newfoundland; Sackville, New Brunswick; Murray Bay, Quebec; Montreal, Quebec; Toronto, Ontario; Sudbury, Ontario; Port Arthur, Ontario; Winnipeg, Manitoba; Saskatoon, Saskatchewan; Banff, Alberta; Vancouver, British Columbia. Any student wishing to write a supplemental examination at an external centre (outside of Canada) must have an appointment with the Director of Examinations before submitting an application.
10. Supplemental examinations are graded only as S (pass), R (fail), or Abs (absent).

11. Application to write a supplemental examination must be submitted to the Director of Examinations *no later than June 24th* on a form which may be obtained from the Registrar's Office. Students applying to write a supplemental examination at an external centre must submit the additional external application form with the regular application form. The required fee must accompany all applications.
12. The regulations concerning supplemental examinations became effective on June 1, 1963 for all students who have not completed first year by that date, and for all students subsequently admitted. Students in second year (or higher) on June 1, 1963, are as of that date, subject to all of the regulations concerning supplemental examinations as listed above, except for number 3. No new maximum limit is imposed on such students.

NOTE : A student who fails courses in excess of the number that may be cleared by supplemental examinations may be unable to complete his degree in four years. Other regulations of the University will *not* be relaxed in order to allow this.

Completion of Courses Graded Incomplete

1. A student who has failed a year may not complete a course, taken during that year, that has been graded incomplete.
2. Application to complete a course graded 'Inc.' must be submitted to the Director of Examinations. The final date for submitting such an application is June 24th. Forms are available at the Registrar's Office. The required fee must accompany all applications. The limiting dates for submission of work are :
 - a) For first-term courses in the regular session, not later than the following April 1st.
 - b) For all other courses in the regular session, not later than the following August 1st.
 - c) For all courses in the summer session, not later than the following November 1st.

NOTE : — The instructor can require earlier completion.

3. Late completions are graded only as S (pass) or R (fail) except for medical reasons (see regulations concerning supplemental examinations).
4. The regulations concerning the completion of incompletes became effective for all students on June 1, 1963.

Repetition of Courses

1. A student may repeat a failed course only once.
2. A student who fails a course that is specifically required for a degree must take the course during the Session in which he next registers. If a required course is taken for the first time during the Summer Session and is failed, the student may postpone his registration for repetition of the course until the Session following the regularly scheduled supplemental examination period for Summer Session courses.
3. If a student repeats a course that is specifically required for a degree and fails it a second time, he may apply to Faculty Council for permission to substitute an alternate course. Unless such permission is granted he will *not* be allowed to continue in the University toward that degree.
4. The regulations concerning repetition of courses became effective for all students registering for the first time during or after the Summer Session, 1963; and to all courses taken for the first time during or after the Summer Session, 1963 by students previously registered.

ENGINEERING

1. A student in Engineering who fails more than two full courses has failed the year and must repeat it (if permitted to do so) for credit.
2. A student in Engineering may write supplemental examinations in not more than two full courses, and not more than three papers, each year.

XIII

Fees

FEES

Day Division

Arts, regular programme (with one lab or problem period)	\$450.00
Fine Arts, regular programme (with two studio periods)	475.00
Science, regular programme (with two labs or problem periods)	475.00
Commerce, regular programme (with one lab or problem period)	450.00
Engineering I, II, III, including lab fees	525.00
Engineering IV, V, including lab fees	650.00
Partial student, per course	100.00
Special Summer Session (full course)	100.00
Special Summer Session (half course)	50.00
Additional course	90.00

Evening Division

Half course	\$ 45.00
Full course	90.00
Engineering, maximum winter session (including lab fees)	280.00

Laboratory Fees

For each subject involving a lab or problem period in addition to those included in fees above	\$ 40.00
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Other Fees

Day Division :	
Students' Association Fee	\$ 15.00
University Centre Fund	5.00
Students' Services Fee	39.00
Student Faculty Association fees not exceeding \$5.00 per day student are payable in addition to the fees set out above.	

Evening Division :

Evening Students' Association Fee	\$ 4.00
Students' Services Fee	8.00

Miscellaneous Charges

Application Fee	\$ 10.00
Associate Diploma Fee	5.00
Course and/or Section Change (per subject)	5.00
Effective Reading Course (registered students)	15.00
Effective Reading Course (others)	85.00
Engineering Certificate	5.00

Graduation Fee, must be paid by April 1st	\$ 10.00
Issuance of Certificate of Registration (Additional)	1.00
Re-reading of paper (refundable if grade is raised)	10.00
Removal of "Incomplete"	10.00
Replacement of Identification Card	5.00
Special Examination Fee, per paper	15.00
Special Registration Fee	10.00
Supplemental Examinations, per paper (written at S.G.W.U.)	10.00
Supplemental Examinations, per paper (at other Canadian centres)	15.00
Supplemental Examinations, per paper (at external centres)	*15.00

*Note : — Invigilation fee not included.

The University reserves the right to institute additional fees without notice.

Policy on Payment of Tuition Fees

On registration students contract to pay the full tuition fees for the courses selected for the academic year. Any student under 21 years of age must be accompanied by a parent or a guardian who must sign the tuition contract, or he must provide the University with the written consent of a parent or guardian to sign a tuition contract with the University. These contracts are binding and may be cancelled only at the discretion of the Treasurer.

Normally, tuition and other fees are paid in full at the time of registration. Students may apply at registration for permission to pay their fees in instalments. Typical examples of the two and five payment plans which are available are set out on the next two pages as Plans "A" and "B". Minimum deposits as shown must be paid at the time of registration. Similar arrangements may be granted to students who have been accepted and who have paid \$250.00 for guaranteed admission. All two payment and five payment plans are subject to a deferred payment charge of \$5.00 and \$10.00 respectively. Registration is not considered complete in any case until students have complied with the regulations of the Registrar's Office and have paid the prescribed deposit or have made arrangements for payment, approved by the Treasurer's Office.

All tuition accounts not paid in full on or before October 1st are subject to a deferred payment charge as set out above. All tuition accounts not paid in full by February 28th will be assessed the maximum deferred payment charge of \$10.00.

All contracts are subject to revision for adjustment of errors.

EVENING DIVISION

Number of Courses	Total Fees	PLAN "A"		4 Monthly Payments Starting Nov. 1
		On Reg'n	Jan. 2	
½ Course	\$ 57.00	\$ 34.00	\$ 28.00	\$ 27.00 \$ 10.00
1 Course	\$102.00	\$ 57.00	\$ 50.00	\$ 44.00 \$ 17.00
1 + 1 lab	\$142.00	\$ 77.00	\$ 70.00	\$ 56.00 \$ 24.00
1½ Courses	\$147.00	\$ 82.00	\$ 70.00	\$ 57.00 \$ 25.00
1½ + 1 lab	\$187.00	\$102.00	\$ 90.00	\$ 85.00 \$ 28.00
2 Courses	\$192.00	\$107.00	\$ 90.00	\$ 78.00 \$ 31.00
2 + 1 lab	\$232.00	\$127.00	\$110.00	\$102.00 \$ 35.00
2 + 2 labs	\$272.00	\$147.00	\$130.00	\$134.00 \$ 37.00
2½ Courses	\$237.00	\$127.00	\$115.00	\$107.00 \$ 35.00
2½ + 1 lab	\$277.00	\$147.00	\$135.00	\$135.00 \$ 38.00
2½ + 2 labs	\$317.00	\$167.00	\$155.00	\$155.00 \$ 43.00
3 Courses	\$282.00	\$152.00	\$135.00	\$144.00 \$ 37.00

DAY DIVISION

Courses	Total Fees	PLAN "A"		4 Monthly Payments Starting Nov. 1
		On Reg'n	Jan. 2	
Arts	\$509.00	\$300.00	\$214.00	\$179.00 \$ 85.00
Science	\$534.00	\$300.00	\$239.00	\$200.00 \$ 86.00
Fine Arts	\$534.00	\$300.00	\$239.00	\$200.00 \$ 86.00
Commerce	\$509.00	\$300.00	\$214.00	\$175.00 \$ 86.00
Engineering I, II, III	\$584.00	\$325.00	\$264.00	\$210.00 \$ 96.00
Engineering IV, V	\$709.00	\$400.00	\$314.00	\$259.00 \$115.00

The above schedules include deferred payment charges of \$5.00 in Plan "A" and \$10.00 in Plan "B". The schedules also include Other Fees which total \$59.00 for the Day Division and \$12.00 for the Evening Division.

Withdrawals and Adjustments

1. Any student who withdraws from a course or from the University is required to notify the Registrar's Office in person or in writing and to give reasons for withdrawing. Withdrawal from classes does not entitle a student to refunds of fees or cancellation of contract without the permission of the Treasurer's Office. No withdrawals will be accepted after January 31 (October 28 for first-term courses).
2. Applications for contract adjustments must be presented no later than two weeks after the beginning of the University term. If a student cancels a course or courses within this period, the rebate is 75% of the tuition fee for each full course, 50% of the tuition fee for each half course scheduled in the first term and all of the tuition fee except the registration deposit of \$10.00 for each half course scheduled in the second term. In the case of lab fees the rebate is 50% of the fee. If a student cancels a second-term half course during the first two weeks of the second term, the rebate is 50% of the tuition fee and in the case of lab fees the rebate is 50% of the fee. **After the two week period immediately following the beginning of classes (for second-term half courses, immediately following the beginning of classes in the second term) no refunds or adjustments are allowed for any reason.**
3. Full time day students are not entitled to any reduction of fees if less than the regular programme of courses is taken.
4. In the Day Summer Session no adjustments or refunds are allowed for cancellation of courses made after the start of the session.
5. Failure to attend classes shall not be considered a cancellation of contract.
6. In the event that the University grants a refund, the following fees are not refundable, viz. : students' services fees; fees for course changes; late registration; removal of incompletes; supplemental examinations; student societies; mature matriculation; and application fees.
7. A registration deposit of \$10.00 per subject (full or half course) will be charged for cancellation before the start of the term.
8. An applicant who has been accepted and who has paid \$250.00 for guaranteed admission to the Day Division will forfeit this payment in the event that registration is not completed or if the application is withdrawn or cancelled after acceptance, regardless of the reason.

9. An evening student who has previously obtained special permission to register for more than the normal course load is not granted any adjustment for the cancellation of any courses.
10. Failure to make payments of tuition fees or other amounts owed the University, when they fall due, or to arrange for such payments before their delinquent dates, is considered sufficient cause, until the debt has been adjusted with the Treasurer's Office, to (1) bar the student from classes or examinations, and/or (2) withhold diploma, scholastic certificate, or transcript of record.

XIV

Prizes

PRIZES

The Birks Medal awarded annually, when merited, by Henry Birks & Sons (Montreal) Ltd., to the highest ranking graduating student in Arts.

The Mappin Medal awarded annually, when merited, by Mappin's Ltd. of Montreal to the highest ranking graduating student in Science.

The Frosst Medal awarded annually, when merited, by Charles E. Frosst & Co., to the highest ranking graduating student in Commerce.

The Chait Medal awarded annually, when merited, to the highest ranking graduating student in Engineering.

The Board of Governors Medal for Creative Expression awarded annually, when merited, by the Board of Governors of the University to the student or students giving evidence in independent work outside the classroom of outstanding ability in creative expression in English or the fine arts, — creative writing, oratory, drawing, painting, drama, or music.

First Graduating Class Award. The first graduating class of the Faculty of Arts, Science and Commerce, known as the Guinea Pig Club, a name symbolic of their pioneering experience, makes a presentation, when merited, to the student who is adjudged to have made the most outstanding new contribution, either academic or extra-curricular, to the student life of the University.

Association of Alumni Award awarded annually, when merited, to the graduating student, who, in the opinion of the Scholarship Committee, has by his activities, achievements, and interest, during his term at the University, won the outstanding commendation and respect of his fellows and of the faculty.

Governor-General's Medal. A medal, presented by His Excellency the Governor-General of Canada, will be awarded annually to the graduating student showing the highest achievement in the field of English language and literature.

The Lieutenant-Governor's Silver Medal for History awarded annually, when merited, to the student with the highest standing in the History major.

The Lieutenant-Governor's Bronze Medal for Mathematics or for Mathematics and Physics awarded annually, when merited, to the student with the highest standing in Mathematics or in the major in Mathematics and Physics.

Le Prix Villard founded by the students in the French Classes of the University in 1942-43 "pour récompenser, chaque année l'étudiant qui s'est le plus intéressé et distingué dans l'étude de la langue et de la littérature françaises," and continued since his death, as a memorial to the late Dr. Paul Villard, by one of his former students, Mr. Yves Gallet.

The J. W. Bridges Medal for Psychology awarded annually, when merited, to the student with the highest standing in Psychology. This prize was established by his colleagues of the faculty to honor the outstanding contribution of Dr. J. W. Bridges, Professor Emeritus and former Chairman of the Department of Psychology.

The Sun Life Prize in Economics awarded annually, when merited, by the Sun Life Assurance Company of Canada, to the graduating student with the highest standing in the Economics major.

The Canadian International Paper Company Prize in Biology, a cash prize of \$100.00 to be awarded annually, when merited, to the graduating student with the best record of work in the field of Biology.

The C.I.L. Prize in Chemistry, a cash prize of \$50.00 to be awarded to the graduating student with the highest standing in Chemistry courses.

Merit Award, The Society of Chemical Industry – Canadian Section awarded annually, when merited, to the student majoring or honouring in Chemistry with the highest standing in the final year of this course.

The Chemical Institute of Canada Prize awarded annually to the best third-year student entering fourth year and majoring in Chemistry.

Hebrew Culture Organization of Canada Prizes, Samuel Kizell Memorial Prize of \$50.00 awarded annually, for excellence in the study of the Hebrew language.

An additional prize of \$50.00 awarded annually, for excellence in the study of the Hebrew language.

The Ross Medal awarded annually, when merited, by Dr. Howard I. Ross to the graduating student with the highest standing in the Accountancy major.

The Investment Dealers Association of Canada Medal awarded annually to the student who obtains the highest standing in Corporation Finance.

The Montreal Economics Association Award awarded annually to the third-year student with the highest standing in Economics.

XV

Student Life

STUDENT LIFE

University Council on Student Life

Established in 1964, this Council includes representatives from the student body, faculty, university administration, and Board of Governors. It is responsible to the Principal for the student life of the University, and develops recommendations in appropriate areas. It also receives all student constitutions.

STUDENT GOVERNMENT. The primary purpose of student government is to provide students with the means to administer student-sponsored activities, organizations, publications and any other matters subject to their jurisdiction. A further role, is to represent the student body in dealing with the rest of the University, other universities, government, and the general public. Individual participation in a leadership capacity is regulated by academic requirements stipulated in the student constitutions. It is through the Students' Association and the Evening Students' Association that the students are offered a wide range of social and cultural programmes. In addition, leading educators, businessmen and public figures visit the University as guests of the students.

STUDENT PUBLICATIONS. All student publications, including the newspaper, "The Georgian", and the yearbook, "Garnet", are financed out of student activity fees, and are under the jurisdiction of the Publications Commission of the Students' Association.

Programme of Activities

Students planning to attend Sir George Williams University should note that "the fundamental educational philosophy of the University is that its chief concern shall be the development of persons, through the medium of formal education and its correlated activities". Two major channels of correlated activities exist, generally described as the co-curricular and extra-curricular.

The extra-curricular activities have always been the main interest and responsibility of the students, and is administered through the Students' Association. The activities are many and varied, and there is wide scope for the interested student; to join an interest group or club; take part in a variety of cultural and social events; or participate in community service projects. In addition, students have opportunities to take responsibility as a committee, group, or council member, where the planning and carrying out of major events is the order of the day. You will have the occasion to obtain specific information after registration because an information booth on activities is set up at the beginning of Freshman Month.

The co-curricular activities have been part of the programme available to students. But it has never had the interest, such as has developed the past two years. Educational needs have, and are, changing in these fast-changing times. The co-curriculum aims at integrating more activities back into the educational stream. Basically, the co-curriculum complements the formal classroom instruction. It is really aimed at the "student who comes to learn rather than be taught". Due to this emphasis, the co-curricular activity is definitely part of the educational process; planned by students and faculty and organized more as seminars, and other media, aimed to create informality, and encourage more dialogue between the teacher and the student.

The University strongly supports such a programme which motivates more learning, and encourages students to take advantage of such experiences. The Office of the Dean of Students offers the resources of its staff to work with, and for, students and faculty in creating experiences which contribute to the learning impact, such as the co-curricular activities.

GEORGIAN PLAYERS. Students may participate in major theatre productions through the Georgian Players, a student group which has professional supervision and direction.

GARNET SINGERS. Under the direction of Frank Armstrong, this opportunity is available to those who like to sing and participate in special events during the academic year.

GARNET KEY SOCIETY. The Garnet Key Society is an Honour Society instituted to represent the University as hosts at special events, and to provide general assistance to the University and its legally constituted entities.

STUDENT SERVICES

UNIVERSITY CHAPLAINS. The following have been appointed by the various institutions to meet the religious needs of interested students.

Rabbi Joseph Deitcher	Chaplain	Jewish
Rev. John Guy	Chaplain	United Church
Rev. Roger Balk	Chaplain	Anglican
Rev. G. P. Predelli	Chaplain	Roman Catholic
Rev. S. Athanasoulas	Chaplain	Greek Orthodox
Rev. J. Vedell	Chaplain	Lutheran

For information and appointments, visit Room 539 in the Henry F. Hall Building or call 879-4432.

RESIDENCE. (Men) Some men students may reside in the YMCA dormitory which occupies the building adjacent to the University. A limited number of rooms is available at a special student rate for full-time day students during the academic year. Information about such reservations should be obtained in advance from the Residence Secretary, Central YMCA, 1441 Drummond Street, Montreal, Quebec.

RESIDENCE. (Women) The residences of the Montreal YWCA or the Julia Drummond Residence, within walking distance of the University, are recommended for women students. Particulars may be obtained from the Institutional Manager, YWCA, 1355 Dorchester Street West, Montreal, Quebec, or the Superintendent of the Julia Drummond Residence, 1208 St. Mark Street, Montreal, Quebec.

HOUSING. The Office of the Dean of Students prepares a list of rooming houses, apartments and homes that are available for students from outside Montreal.

STUDENT ACCIDENT AND SICKNESS INSURANCE. Sir George Williams University offers a comprehensive accident and sickness plan to all day students. This group plan has been endorsed by the Students' Association. The programme is designed to help students and parents meet the high financial cost of medical expenses due to accidents and sickness sustained while attending the University. Through this voluntary group plan, the students is insured for the full twenty-four hours each day during the policy term of one year, at a cost less than half of that which would be incurred if the same coverage were obtained on an individual basis. Commencement date of the coverage is the first day of classes in the Fall. Overseas students attending the University are provided special coverage at additional cost, since they are not covered under the Quebec Hospitalization Plan.

HEALTH SERVICES. The University Health Centre is located in the sub-basement of the Hall Building, Room 003, with a smaller unit in the basement of the Norris Building, Room 002. Both Centres are staffed with Registered Nurses, Monday through Friday from 8:30 a.m. to 10:00 p.m., in the Hall Building, and from 10:00 a.m. to 10:00 p.m. in the Norris Building. Appointments to see the doctor may be made by calling Local 4010. The Centre can refer students to the various specialists and is equipped to give treatment for headaches, first aid, and minor injuries. A rest area is also provided. Students may receive allergy injections in the Centre if they provide their own vaccine accompanied by written instructions from their doctor.

FINANCIAL AID. Information on student financial aid may be obtained from the Office of the Dean of Students.

OVERSEAS AND OUT-OF-TOWN STUDENTS. In 1967-68, there were 220 students from 27 countries registered at the University in addition to 209 Canadian students from outside Montreal. The emphasis in working with overseas students is assimilation into the student body in recognition of the contribution they can make to campus life. To help meet the needs of overseas students, a student Advisory Board meets regularly to discuss mutual needs, programmes and student reception. This committee comprises of representatives of the different overseas student groups on campus and as such is truly qualified to deal with foreign student affairs. The introductory handbook is one of the projects of the committee, and it has been learned from foreign students that it is useful as a ready source of information prior to their departure from home.

Further information on STUDENT LIFE and STUDENT SERVICES may be obtained from the Office of the Dean of Students.

ATHLETICS

The University is a member of the Ottawa-St. Lawrence Athletic Association, and the Canadian Intercollegiate Athletic Union. The O.S.L.A.A. is a ten-member association of universities and colleges in the St. Lawrence Valley area. A strong rivalry exists within the Association.

Sir George sponsors representative teams in fifteen different activities on the intercollegiate level. Participation in the intercollegiate athletics programme is encouraged. The University's athletes have amassed an enviable record as well as a fine reputation in athletics.

The intramural programme is varied and includes team sports as well as individual and special interest events. The women students are offered participation in intercollegiate, intramural and recreational activities. The women's programme is not as extensive as the men's but is showing considerable increase each year.

The athletics programme is governed by the University Athletics Council, a Council with representation from all phases of the university community.

ELIGIBILITY. Participation in intercollegiate athletics is dependent upon satisfactory academic performance and is limited to full-time registered day students. *Full-time registered day university students may not compete for outside organizations without written permission*

from the Athletics Council. These regulations are academic in nature, and are designed to prevent a student from becoming involved in a programme which is detrimental to his scholastic progress.

RESPONSIBILITY OF UNIVERSITY. While every reasonable precaution will be taken to prevent accidents, students are reminded that participation in athletics and other curricular or extra-curricular activities in the University is entirely at their own risk. Students competing in intercollegiate athletics are covered by an athletics accident insurance policy. Other participants may purchase the same coverage at a nominal cost through the Students' Association. The University accepts no responsibility for the loss of personal effects.

XVI

Office of Guidance Services

OFFICE OF GUIDANCE SERVICES

The Office of Guidance Services had its origin in the establishment of an office of student counselling in the very early years of the University's history. Its functions have widened in scope to include provision of the following: (1) a variety of student counselling services including individual and group counselling (2) an information service with special emphasis upon graduate and career planning (3) reading improvement and study skills programmes (4) a student placement service (5) research into factors affecting student progress and into the programmes and practices employed in the Office of Guidance Services.

Counselling

Counselling is a service to individuals offered with a view to assisting them to take fullest advantage of their educational opportunities.

Students encounter a variety of difficulties during their university years and most need help at one time or another in overcoming them. These difficulties may center around planning an appropriate course of study, choosing a career, clarifying goals or may be related to personal doubts and uncertainties, poor study methods, fear of failure, unproductive attitudes and other problems of a personal nature.

Discussion with a trained counsellor is usually helpful in clarifying the issues and is an aid towards developing an appropriate course of action. The service includes a psychiatric consultant and other referral resources are available. Appointments may be arranged by visiting the Office of Guidance Services or by telephoning the receptionist at 879-2879.

Guidance Information Centre

It is the aim of this centre to provide students with environmental information as an aid to their making appropriate choices and decisions, particularly as related to graduate and career planning.

The centre maintains an extensive and up-to-date library of educational and occupational information, including a collection of university announcements from Canada and abroad, directories of universities, disciplines and programmes, compilations of financial aid for postgraduate studies, information on graduate school admission tests, a collection of career materials, guides to special service, travel and work programmes abroad, information on companies

offering employment and pamphlets written to assist in the preparation of curriculum vitae and personal resumés. There is also a collection of books and pamphlets treating the general themes of love, family life and personal development.

Reading Training Centre

Through its programmes in effective reading and general study methods, this centre aims to help students develop the skills necessary to manage university level studies. These programmes are available in group and individual sessions to students in all years in keeping with their special needs and as circumstances permit. Modern instructional media, special reading equipment, tapes, recordings and films are used as aids in most of these programmes.

Group programmes are offered several times each year. Students may also arrange to discuss personal study and reading problems on an individual basis.

Student Placement Centre

This service, staffed and operated in cooperation with the Canada Manpower Centre, functions to assist students in exploring opportunities for part-time, summer and full-time employment. Notices from employers are posted and students are invited to discuss these with a Placement Officer who will assist in arranging interviews with employers' representatives as appropriate.

The extensive information services of Canada Manpower Centre and the Guidance Information Centre are of particular interest to those undergraduates, graduating students and graduates who wish to fully explore career opportunities with a view to permanent employment.

All those who wish to use the services of the Student Placement Centre should register early. Those seeking permanent employment should register soon after the academic session opens as many employers begin recruiting visits in mid-October. Students seeking temporary summer work are advised to register as early as January. An open invitation is extended at all times of the year to students who wish to discuss their employment and career plans.

Board of Governors Resolution Dated February 8, 1968

The Board of Governors of Sir George Williams University affirms the right of every student to participate in placement interviews of his choice as part of his university experience. It, therefore, calls

upon the university community to respect this right, to regard any interference with the holding of such interviews as infringing upon a right of members of the university, and to cooperate in maintaining the freedom to exercise this right.

The Board of Governors, therefore, authorizes open recruiting for employment purposes on the campus.

Location and Hours

Located in room 440 of the Hall Building, the Office of Guidance Services operates twelve months of the year and is open from 9:00 a.m. to 9:00 p.m. to meet the convenience of both day and evening division students.

XVII

Facilities and Services

FACILITIES OF THE UNIVERSITY

Sir George Williams University and the five Sir George Williams Schools occupy a six-storey building on Drummond Street, the second and third floors of the Y.M.C.A. immediately adjacent to it, and the newly-opened Henry F. Hall Building.

Laboratories. The University has approximately 100 laboratories and draughting rooms with modern equipment to assist in the teaching of such subjects as Biology, Chemistry, Physics, Engineering, Statistics, Psychology, Geography, and Language.

Computer Centre. In line with the growing effect of computers on today's society the University operates a modern, up-to-date Computer Centre. Designed to serve the whole University community including students, faculty, and administration, the Centre is equipped with two electronic computers. These are a small-scale IBM 1620 (equipped with most accessories) and a much larger more powerful Control Data Corporation 3300 time-sharing computer. The latter computer is specifically oriented to provide easy access and fast turnaround time in addition to high computational power. Both computers are supported by a professional staff ready to aid faculty and students in their work.

In addition to its support function, the Computer Centre also offers a number of courses in Computer Science. These courses, available to students in all faculties, are designed to provide a knowledge of, and an understanding of how to use computers. Other courses are offered for those students wishing to specialize in the computer field.

Studios. Art studios are available for work in drawing, painting, graphics, design and sculpture.

Auditoria. One auditorium in the K. E. Norris Building, with a seating capacity of 400, is fully equipped with stage, dressing-rooms and scene shop. It is called Birks Hall of honour of the late Colonel Gerald Walker Birks. A second auditorium accommodating 700 and a theatre seating 350 are located in the Henry F. Hall Building. There are eight additional auditoria.

Art Galleries. The three galleries, located on the second floor indoor campus of the Hall Building display works from the University collection. Consisting of 226 pieces of art, it is considered one of the largest collections of contemporary Canadian art in the country.

Libraries. The University libraries under the direction of trained librarians, make available a growing collection of books, periodicals, government publications, microforms, and other library materials for circulation or reading room use. The Main Library, which provides materials mainly in Arts and Commerce subjects, is located on the fifth and sixth floors of the Norris Building. Seating is provided for approximately 400 students. The Science and Engineering Library is located on the tenth floor of the Henry F. Hall Building and can seat 144 students. There are study rooms on the fourth and twelfth floors which provide seating accommodation for approximately 336 students.

Chapel. The Captain's Chapel, with its modern-romanesque architecture, stained glass, and organ, provides an atmosphere conducive to quiet meditation and spiritual inspiration.

Gymnasium and Swimming Pool. Students, on request, are entitled to Central Y.M.C.A. membership cards which provide full membership privileges to day students and limited privileges to evening students during the academic terms.

Food Services. The University has a complete food service operation. The main student dining room and snack bar is located on the seventh floor of the Henry F. Hall Building. This location offers a good variety of tasty, balanced, wholesome meals, a wide choice of short order items, and courteous and friendly service in comfortable, pleasant surroundings, all at budget prices. In addition, a refreshment centre featuring over seventy-five popular snack bar items is located on the fourth floor of the Norris Building. Facilities are also available for banquets, teas, meetings, parties and dances. For further information in this regard please contact the banquet manager located on the seventh floor of the Hall Building.

Residences. Sir George Williams University is a non-residential institution, and students from out-of-town are responsible for their own living arrangements.

University Bookstore. All books and supplies, including art materials required, may be bought at the University Bookstore, 2085 Bishop Street, near the Hall Building and operated on a self-service basis. Students are reminded to consult a book-list to insure the correct edition before purchasing. A new Paperback Store, located in the basement of the Hall Building has approximately 8,000 titles in stock for supplementary reading lists. It is also self-service. Additionally, a self-service rush arrangement will be available in the parking garage of the Hall Building during registration. Books required by Commerce students are sold at the bookstore on the third floor of the Y.M.C.A.

Centre for Human Relations and Community Studies. The Centre, located on the third floor of the Norris Building, is a research, consultation and training service of the Department of Applied Social Science. It is designed to promote an understanding of the human dimension of organizations and the social environment in which they operate and to provide information, procedures and training programs that have direct application to the solution of organization or community problems. The Centre is staffed by an inter-disciplinary team of professional psychologists, sociologists, educators and social workers. It works as consultants to a wide variety of organizations and associations, as well as the government, business and industry. Students may be involved in Centre programmes through courses in the Department of Applied Social Science and especially through the Project Seminar which is available to fourth-year majors in the department.

Regular Officer Training Plan (R.O.T.P.) This scheme permits students, particularly in the professional faculties, to receive generous subsidization for their education in return for limited service with any of the three branches of the armed forces. Further information can be obtained from the Canadian Armed Forces Recruiting Centre, 1254 Bishop Street.

XVIII

Cancelled and Altered Courses

CANCELLED COURSES

The following courses are no longer offered and have been dropped from the curricula. Course descriptions for all of the following can be found in the previous Announcement.

Chemistry 230. Physical Chemistry
 English 474. Literature and Society
 History 432. History of the British Empire and Commonwealth
 History 442. History of Modern France and Germany
 History 454. Inter-American Relations: Canada and the United States
 History 494. The Rise of Industrial Society in America
 History 495. American Urban History.

ALTERED COURSES

The following course titles and/or course numbers have been changed:

Applied Social Science 462. See Applied Social Science 461.
 Chemistry 422. See Chemistry 471
 Chemistry 425. See Chemistry 472.
 Civil Engineering 241. See Engineering 241.
 Civil Engineering 341. See Engineering 341.
 Civil Engineering 343. See Engineering 343.
 Civil Engineering 441. See Engineering 441.
 Economics 271. See Economics 471.
 Education 211. See Education 431.
 Electrical Engineering 311. See Engineering 372.
 Electrical Engineering 442. See Engineering 372 and 471.
 Engineering 331. See Engineering 510.
 Engineering 371. See Engineering 214.
 English 216. See English 215.
 English 241, 242, 243. See English 240.
 French 426. See French 428 and 429.

Geology 231. See Geology 411.
 Geology 241. See Geology 421.
 History 471. See History 474.
 Mathematics 391. (Engin.) See Mathematics 393. (Engin.)
 Mechanical Engineering 331. See Engineering 350.
 Mechanical Engineering 411. See Engineering 372 and 471.
 Mechanical Engineering 431. See Mechanical Engineering 451.
 Mechanical Engineering 441. See Mechanical Engineering 453.
 Mechanical Engineering 461. See Mechanical Engineering 444.
 Psychology 221. See Psychology 481.
 Psychology 223. See Psychology 482.
 Psychology 231. See Psychology 437 and 438.
 Religion 243. See Religion 461.

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